Hope Foundation's
International Institute of Information Technology, Pune
DEPARTMENT OF ENGINEERING SCIENCES
Academic Year : 2022-23, Semester - II

SLOW AND ADVANCED LEARNER IDENTIFICATION

Course Code : 107009 | **Class : D (Comp)**

Course Name: Engineering Chemistry | **Name of Faculty: Mrs. B. M. Tayde**

Roll No.	Name of Student	Class Test I (Out of 20)	50% Weightage	Overall % of Marks in Previous Exam (out of 100)	25% Weightage	Class Observation (on the Scale of 1-10)	25% Weightage	Total % Weightage (out of 100)
		9	22.5	80	20	10	25	68
FD01	AASHUTOSH SANDEEP MALI	7	12	77.54	19	9	23	54
FD02	ADITI NAMDEO JADKAR	19	32	72.46	18	8	20	70
FD03	AKHILESH TRIPATHI	7	12	66.77	17	6	15	43
FD04	AMEYA PATEL	18	30	76.00	19	10	25	74
FD05	ANISH KEDAR MAHAJAN	9	15	74.62	19	9	23	56
FD06	ANISH KUMAR MISHRA	11	18	59.92	15	7	18	51
FD07	ANSH MAWA	12	20	38.23	10	5	13	42
FD08	ARBAZ YUSUF SHAIKH	13	22	71.69	18	7	18	57
FD09	ARIN UJWAL SHASTEAKAR	6	10	42.15	11	8	20	41
FD10	AROTE ONKAR BALASAHEB	9	15	43.85	11	6	15	41
FD11	AYUSH SINGH	3	5	58.77	15	6	15	35
FD12	BAKALE NAYAN VIJAY	14	23	46.85	12	5	13	48
FD13	BANSODE ARYAN ANANT	7	12	50.15	13	5	13	37
FD14	BARAIYA VIVEK JAGDISH	11	18	66.00	17	7	18	52
FD15	BHADANGE PRASAD VALMIK	6	10	57.92	14	6	15	39
FD16	BHAMARE SHREEYA MANISH	9	15	62.92	16	9	23	53
FD17	BHAPKAR PRAJAKTA YASHWANT	9	15	62.08	16	8	20	51
FD18	BHONDAVE SHREYA SANJAY	11	18	55.31	14	8	20	52
FD19	BHOSALE ADITYA POPAT	9	15	53.08	13	7	18	46
FD20	BHOSALE OM SUNIL	0	0	57.85	14	7	18	32
FD21	BHOSIKAR SHRUSHTI RAJESHWAR	10	17	60.38	15	7	18	49
FD22	BHUSE ATHARV MADHAV	16	27	59.15	15	7	18	59
FD23	BODHANE ATHARV PRAMOD	14	23	63.62	16	8	20	59
FD24	BORUDE SIDDHANT SANJAY	8	13	46.92	12	8	20	45
FD25	CHAITANYA PANNALAL PATIL	4	7	54.69	14	8	20	40
FD26	CHAUDHARI AKANKSHA ANANT	7	12	41.92	10	5	13	35
FD27	CHAVAN MAYUR BHAGWAN	8	13	74.62	19	8	20	52
FD28	CHIKHALE SHRAVAN RAMDAS	9	15	45.00	11	9	23	49
FD29	DAHIFALE GANESH SHANKAR	0	0	38.08	10	5	13	22
FD30	DAHIPHALE MANTHAN JAYPRAKASH	14	23	59.92	15	9	23	61
FD31	DAMBARE SUDHANSHU LAXMAN	6	10	41.54	10	7	18	38

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FD32	DARANDALE SAURABH AMBADAS	4	7	52.77	13	5	13	32
FD33	DAUNDKAR MANSI SHIVAJI	5	8	69.15	17	8	20	46
FD34	DEORE SANKET SUNIL	10	17	69.69	17	9	23	57
FD35	DESHMUKH ATHARVA SHASHIKANT	16	27	57.85	14	5	13	54
FD36	DESHMUKH OM DATTATRAY	16	27	58.23	15	7	18	59
FD37	DESHMUKH SIDDHI PADAMAKAR	13	22	65.54	16	8	20	58
FD38	DESHMUKHE SIDDHANT NITIN	6	10	64.77	16	7	18	44
FD39	DESHPANDE VEDANT SHASHANK	16	27	53.69	13	6	15	55
FD40	DHANRAJ GUPTA	8	13	55.23	14	10	25	52
FD41	DHANVATE KIRAN RAMESH	8	13	58.69	15	8	20	48
FD42	DHUMAL ANUSHKA SANTOSH	10	17	69.46	17	9	23	57
FD43	DIWANSHU LALIT RAHANGDALE	2	3	83.85	21	9	23	47
FD44	GADAGE ADESH SUBHASH	12	20	67.46	17	7	18	54
FD45	GAIKWAD ABHINANDAN AMOL	6	10	63.23	16	7	18	43
FD46	GAIKWAD PRATIKSHA PRAVIN	4	7	53.38	13	9	23	43
FD47	GAIKWAD VISHAL RAJENDRA	4	7	63.85	16	10	25	48
FD48	GAVANDE HANSRAJ CHANDRASHEKHAR	13	22	43.85	11	9	23	55
FD49	GAWANDE SANIKA KRUSHNARAO	7	12	62.46	16	7	18	45
FD50	GIRGAONKAR PRIT MARUTI	0	0	62.08	16	8	20	36
FD51	GOSWAMI PRANAV RAJENDRA	5	8	28.31	7	3	8	23
FD52	GOVE PRANAVKUMAR DAMAJI	10	17	66.23	17	8	20	53
FD53	HAJARE SOHAM RAJU	11	18	51.08	13	7	18	49
FD54	HANDAL KARTIKA BALASAHEB	14	23	61.85	15	10	25	64
FD55	HANSE SOHAM SANDEEP	12	20	61.85	15	8	20	55
FD56	HIREMATH SHRADHA OMPRAKASH	11	18	43.15	11	7	18	47
FD57	INDULKAR DIGVIJAY MARUTI	5	8	51.23	13	8	20	41
FD58	JADHAV BHAVESH MANGALSING	8	13	60.31	15	8	20	48
FD59	JAISWAL SWAYAM RUPESH	5	8	70.92	18	6	15	41
FD60	JARE PRATIKSHA MUKUNDA	4	7	80.31	20	8	20	47
FD61	JERIN JOY	12	20	30.54	8	7	18	45
FD62	KADAM JAY HANAMANT	7	12	67.92	17	7	18	46
FD63	KAKDE ADITYA DILIP	17	28	75.77	19	9	23	70
FD64	KALAMBE DIKSHA SUNIL	2	3	77.08	19	7	18	40
FD65	KALE AISHWARYA SHANKAR	3	5	77.15	19	10	25	49
FD66	KALE VAISHNAV SANTOSH	12	20	77.00	19	8	20	59
FD67	KANWATE ARTI SURYAKANT	10	17	67.00	17	9	23	56
FD68	KAPARE ADITYA SHAILESH	9	15	76.62	19	9	23	57

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Signature of Faculty

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DEPARTMENT OF ENGINEERING SCIENCES
Academic Year : 2022-23, Semester - II

SCHEDULE OF SLOW LEARNER ACTIVITIES

Class : FE Comp Div D
Course : Engineering Chemistry **Name of Faculty: Prof. B. M. Tayde**

Lecture No.	Date	Time	Activity	Topic/Unit Covered
1	20-6-2023	2.45 pm to 3.45 pm	Explaination of difficult topics	Nanomaterials / Unit III
2	21-6-2023	2.45 pm to 3.45 pm	Preparation of FAQs from previous year University Question papers	Unit III and Unit IV
3	23-6-2023	2.45 pm to 3.45 pm	Solved the numericals	Fuel / Unit IV
4	23-6-2023	2.45 pm to 3.45 pm	Preparation of FAQs from previous year University Question papers	Unit V and Unit VI

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Mrs. B. M. Tayde
Name and Signature of Subject Teacher

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DEPARTMENT OF ENGINEERING SCIENCES
Academic Year : 2022-23, Semester - II

List of Assignments/Projects given to Advanced Learners

Class : FE Comp Div D
Course : Engineering Chemistry **Name of Faculty: Prof. B. M. Tayde**

Roll No.	Name of Student	Assignment
FD02	ADITI NAMDEO JADKAR	Prepared difficult topics and explained in the class
FD04	AMEYA PATEL	Prepared difficult topics and explained in the class
FD63	KAKDE ADITYA DILIP	Doubt solving session of classmates

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Mrs. B. M. Tayde
Name and Signature of Subject Teacher

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DEPARTMENT OF ENGINEERING SCIENCES
Academic Year : 2022-23 Semester : II

LIST OF SLOW LEARNERS

Class: FE Comp Div D **Subject: Engineering Chemistry**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)
FD11	AYUSH SINGH	35
FD13	BANSODE ARYAN ANANT	37
FD15	BHADANGE PRASAD VALMIK	39
FD20	BHOSALE OM SUNIL	32
FD26	CHAUDHARI AKANKSHA ANANT	35
FD29	DAHIFALE GANESH SHANKAR	22
FD31	DAMBARE SUDHANSHU LAXMAN	38
FD32	DARANDALE SAURABH AMBADAS	32
FD50	GIRGAONKAR PRITI MARUTI	36
FD51	GOSWAMI PRANAV RAJENDRA	23

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DEPARTMENT OF ENGINEERING SCIENCES
Academic Year : 2022-23 Semester : II

LIST OF ADVANCED LEARNERS

Class: FE Comp Div D **Subject: Engineering Chemistry**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)
FD02	ADITI NAMDEO JADKAR	70
FD04	AMEYA PATEL	74
FD63	KAKDE ADITYA DILIP	70

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DEPARTMENT OF ENGINEERING SCIENCES
Academic Year : 2022-23 Semester - II

ATTENDANCE RECORD OF SLOW LEARNERS

Class: FE E&Tc **Subject: Engineering Chemistry**

Roll No.	Name of the Student	Lect No	1	2	3	4	5
		Date	20-6-2023	21-6-2023	23-6-2023	26-6-2023	
FD11	AYUSH SINGH		P	P	P	P	
FD13	BANSODE ARYAN ANANT		P	P	P	P	
FD15	BHADANGE PRASAD VALMIK		P	P	P	P	
FD20	BHOSALE OM SUNIL		P	P	P	P	
FD26	CHAUDHARI AKANKSHA ANANT		P	P	P	P	
FD29	DAHIFALE GANESH SHANKAR		P	P	P	P	
FD31	DAMBARE SUDHANSHU LAXMAN		P	P	P	P	
FD32	DARANDALE SAURABH AMBADAS		P	P	P	P	
FD50	GIRGAONKAR PRITI MARUTI		P	P	P	P	
FD51	GOSWAMI PRANAV RAJENDRA		P	P	P	P	
	Signature of Faculty						
	Signature of Academic Co-Ordinator						
	Signature of Head of Department						

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International Institute of Information Technology, Pune
DEPARTMENT OF ENGINEERING SCIENCES
Academic Year : 2022-23 Semester - II

PERFORMANCE IMPROVEMENT OF SLOW LEARNERS

Class: FE E&Tc **Subject:** Engineering Chemistry

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)	Marks Obtined in Online/ Insem Exam (out of 30)	Marks Obtianed in End Sem Exam (out of 70)	Total Marks (out of 100)	Improved / Not Improved
FD11	AYUSH SINGH	35	9	43	52	Improved
FD13	BANSODE ARYAN ANANT	37	6	30	36	Not Improved
FD15	BHADANGE PRASAD VALMIK	39	18	35	53	Improved
FD20	BHOSALE OM SUNIL	32	13	31	44	Improved
FD26	CHAUDHARI AKANKSHA ANANT	35	9	18	27	Not Improved
FD29	DAHIFALE GANESH SHANKAR	22	9	24	33	Not Improved
FD31	DAMBARE SUDHANSHU LAXMAN	38	3	12	15	Not Improved
FD32	DARANDALE SAURABH AMBADAS	32	5	35	40	Improved
FD50	GIRGAONKAR PRITI MARUTI	36	8	45	53	Improved
FD51	GOSWAMI PRANAV RAJENDRA	23	4	8	12	Not Improved
	Signature of Faculty					
	Signature of Academic Co-Ordinator					
	Signature of Head of Department					

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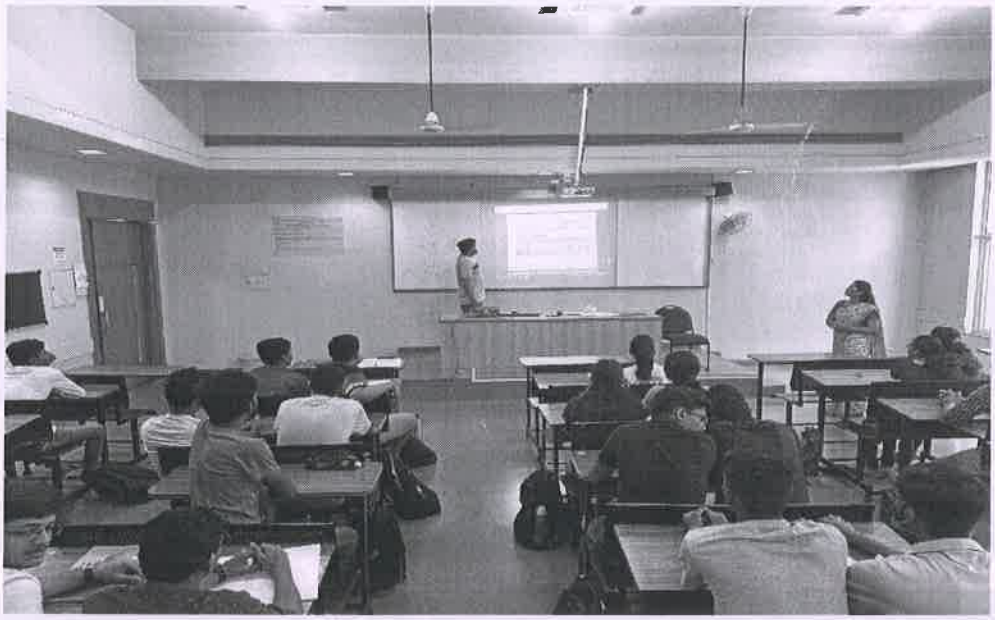
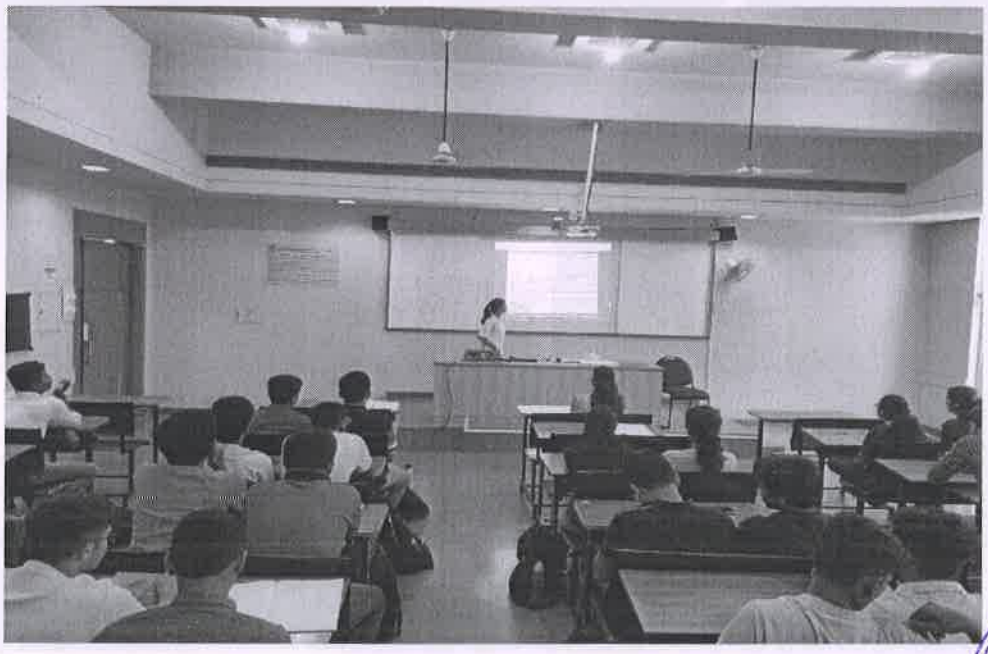
Engineering Sciences Department

A Y 2022-23, SEM-II

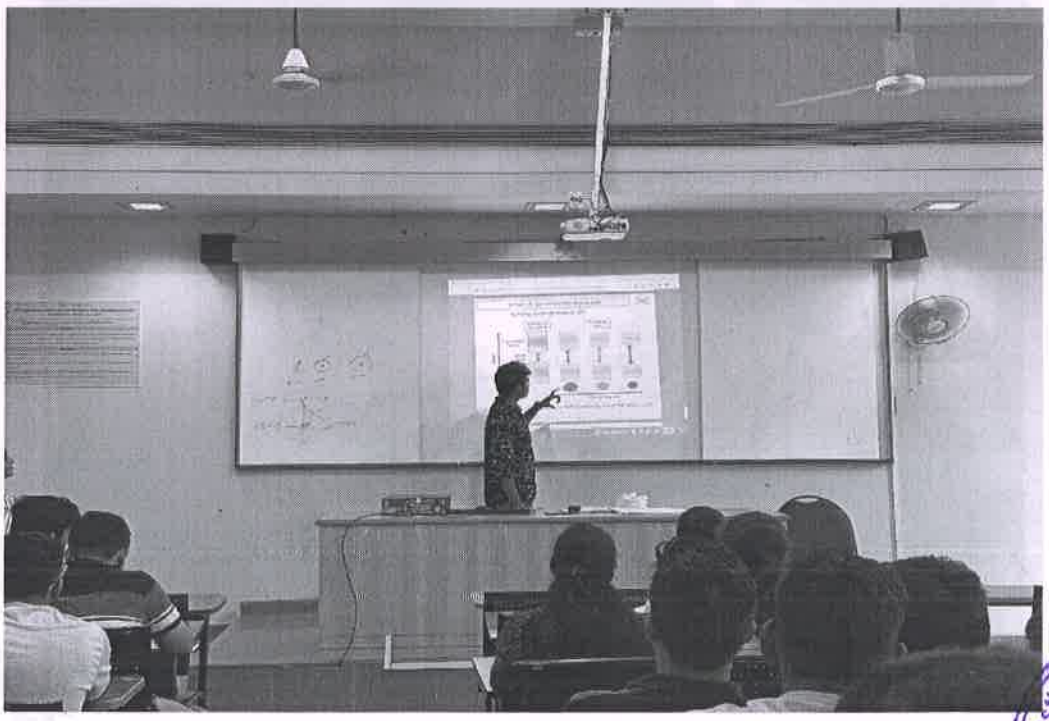
Slow Learner Activities

1. Academically weaker students were asked to clear each other's doubts with the help of class mates.



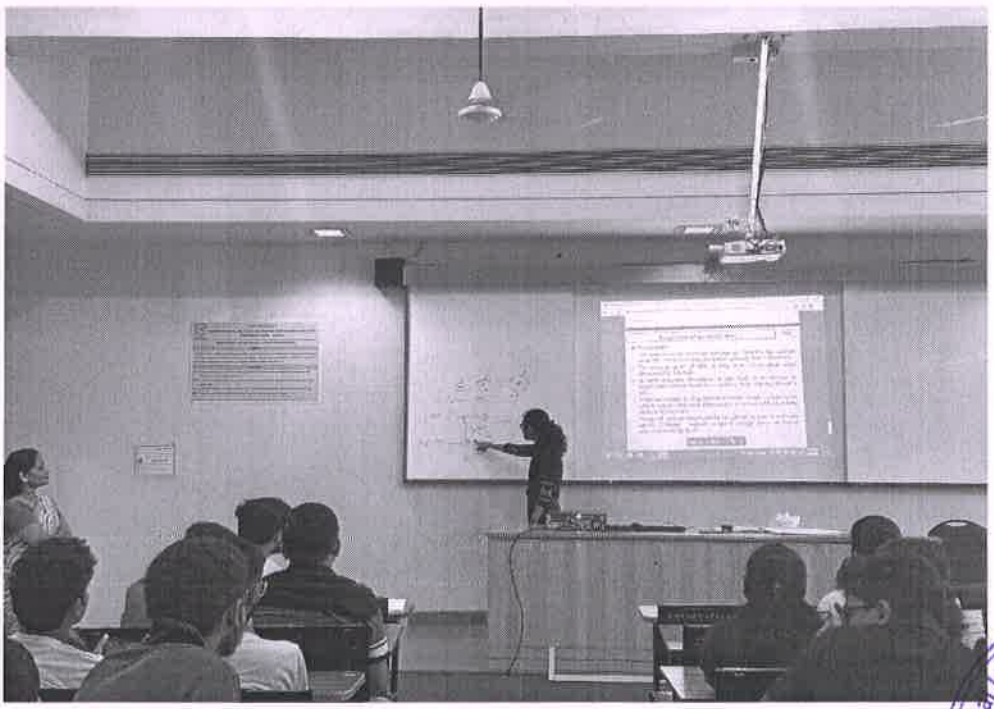


2. Academically weaker students were asked to prepare the topic of their choice and explain it in the class.



Advance Learner Activity

1. Advanced learners were asked to prepare the difficult topics and explain in the class as a revision to the class.



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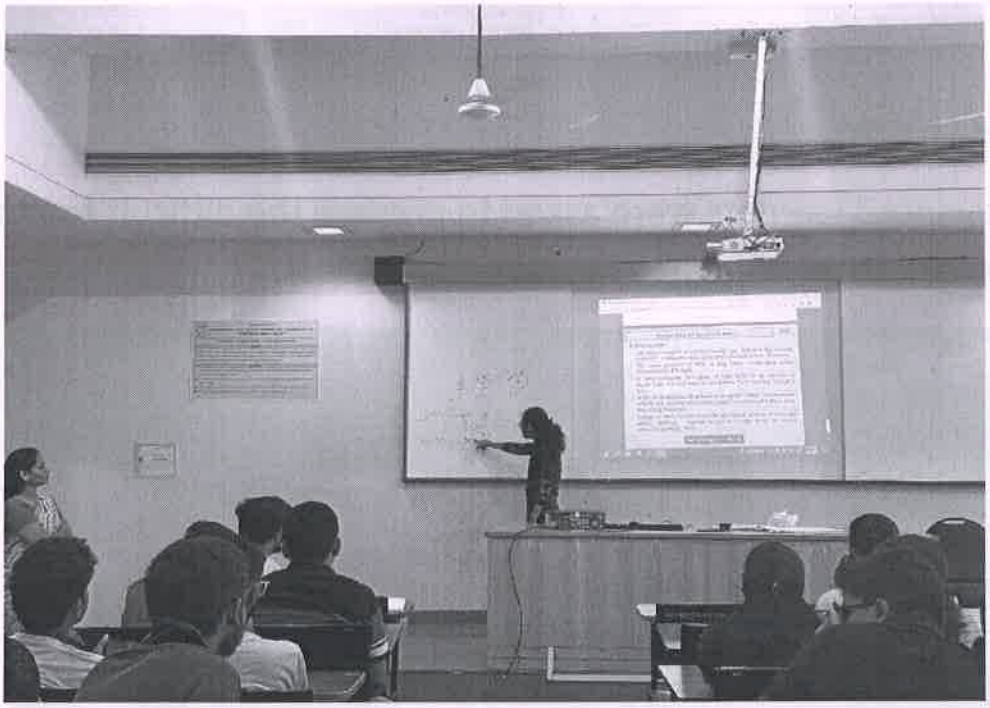

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Advance Learner

1. Advanced learners were asked to prepare the difficult topics and explain in the class as a revision to the class.

Hope Foundation's
International Institute of Information Technology, Pune
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION
Academic Year 2022-23 Semester II

SLOW AND ADVANCED LEARNER IDENTIFICATION

Course Code: 204193				Class: SE 2019				
Course Name: Principles of Communication Systems				Name of Faculty: Prof. Sujata Sachin Virulkar				
Roll No.	Name of Student	Class Test I (Out of 30)	50% Weightage	Overall % of Marks in Previous Exam (out of 100)	25% Weightage	Class Observation (on the Scale of 1-10)	25% Weightage	Total % Weightage (out of 100)
1	AASHAY RAJENDRA KHER	AB	0	8	2	9	23	25
2	ARGHODE RUHI HEMANT	21	11	36	9	9	23	42
3	ATHANE SHUBHAM SURESH	24	12	44	11	9	23	46
4	ATHARVA SACHIN KHARE	AB	0	16	4	9	23	27
5	AWATE SMRUTI RAMCHANDRA	AB	0	30	8	9	23	30
6	BADHE VAIBHAV	29	15	50	13	9	23	50
7	BAFANA KHUSHI ABHAY	25	13	62	16	9	23	51
8	BAGDE ROHIT AMAN	AB	0	9	2	9	23	25
9	BANKAR YASH MANOJ	26	13	58	15	9	23	50
10	BANSODE LIMBNATH VYANKAT	24	12	17	4	10	25	41
11	BASWADE ANIKET AMOL	28	14	56	14	9	23	51
12	BHARDWAJ HARSH	23	12	35	9	9	23	43
13	BHOYAR GOURI SANDEEP	24	12	63	16	9	23	50
14	BIRADAR ADITYA MAHADEV	AB	0	54	15	10	25	40
15	CHAKOTE TEJAS	AB	0	30	8	10	25	33
16	CHAUDHARI NISCHAL RAHUL	25	13	50	13	9	23	48
17	CHAVAN SOHAM PANDURANG	25	13	44	11	9	23	46
18	CHAVAN TANVI ANIL	AB	0	16	4	9	23	27
19	DESAI ATISH ASHOK	26	13	53	13	9	23	49
20	DHAGALESHUBHAM SHRIKANT	29	15	50	13	9	23	50
21	FALGUN HEMANT PATIL	AB	0	50	13	9	23	35
22	GADGIL SIDDHIKA SANTOSH	27	14	41	10	9	23	46
23	GADHAVE ISHANT	AB	0	71	18	9	23	40
24	GAHIWAD DARSHAN KISHOR	24	12	57	14	9	23	49
25	GOSAVI RAGHAV VEERENDRA	25	13	42	11	9	23	46
26	GUNDAL PARAG BHIMRAJ	28	14	76	19	9	23	56
27	HALKUNDE PRATIK SANTU	24	12	63	16	9	23	50
28	HARSHIT RISHI PANDE	AB	0	25	6	9	23	29
29	HRISHIKESH GORAKH AUTI	28	14	30	8	9	23	44
30	JATAL ADITI DIGAMBAR	AB	0	65	16	10	25	41
31	JOSHI SOHAM	24	12	44	11	9	23	46
32	KAKDE RUTIKA SUNIL	27	14	26	7	9	23	43
33	KAMBLE SNEHAL LAHUJI	27	14	24	6	9	23	42
34	KAPADNIS SHRAVANI PRASHANT	28	14	37	9	9	23	46
35	KENDRE TANMAY SANDESH	15	8	37	9	10	25	42
36	KESARKAR GANESH	26	13	32	8	9	23	44
37	KHANDARE RHUTUJA	26	13	36	9	9	23	45
38	LONKAR SANIKA SANJAY	25	13	70	18	9	23	53
39	MAINDE MANAS YOGESH	26	13	43	11	9	23	46
40	MANANI RIYA MANISH	26	13	53	13	9	23	49
41	MANDAVGAD RITESH	26	13	56	14	9	23	50
42	MANDIRA BABULAL BAGLE	29	15	40	10	9	23	47
43	MANE DANISH ROHIDAS	29	15	53	13	9	23	50
44	MANGESH RAJABHAU GAIKWAD	22	11	49	12	9	23	46
45	NAWALE RESHMA NAVNATH	25	13	28	7	9	23	42
46	NUZHAT ABDUS SALAM INAMDAR	28	14	32	8	9	23	45
47	OZA JHANVI UDAY	24	12	38	10	9	23	44
48	PANSARE HARSHADA SUNIL	27	14	54	14	9	23	50
49	PATIL DISHANT MOHAN	AB	0	34	9	9	23	31
50	PATIL MANDAR SANTOSHRAO	28	14	64	16	9	23	53

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Roll No.	Name of Student	Class Test I (Out of 30)	50% Weightage	Overall % of Marks in Previous Exam (out of 100)	25% Weightage	Class Observation (on the Scale of 1-10)	25% Weightage	Total % Weightage (out of 100)
51	PAWAR ATHARVA SHASHIKANT	26	13	51	13	9	23	48
p	PAWAR SHRUSHTI VISHWANBAR	AB	0	32	8	9	23	31
53	RAJGUDE KSHITIJ MAHENDRA	20	10	18	5	10	25	40
54	RASAL ASHWINI RAJARAM	AB	0	73	18	9	23	41
55	RASAL PALLAVI SAMPAT	28	14	60	15	9	23	52
56	RATHOD ANIKET BALAJI	AB	0	29	7	9	23	30
57	SALI DARSHAN SUNIL	AB	0	12	3	9	23	26
58	SAMRUDDHI DHANANJAY	26	13	71	18	9	23	53
59	SAYYAM RAHUL CHORDIYA	28	14	35	9	9	23	45
60	SHINDE SANIKA SANDESH	27	14	33	8	9	23	44
61	SHINDE SNEHAL RAJENDRA	27	14	20	5	9	23	41
62	SHINDE SWAPNIL UTTAM	27	14	50	13	9	23	49
63	SHINDE VISHAKHA SANJEEV	AB	0	49	12	9	23	35
64	SIDDHANT YAJUR DHONGDE	AB	0	53	15	10	25	40
65	SONGIRE HARSH SUNIL	AB	0	64	16	10	25	41
66	SRIVASTAVA ISHITA	26	13	31	8	9	23	43
67	SUYASH PARAG KARNAD	AB	0	73	18	9	23	41
68	SWAPNIL SHANTINATH SATPUTE	26	13	44	11	9	23	47
69	TARFE PRATIK SANJAY	27	14	58	15	9	23	51
70	TARKE PRATHMESH ANANT	AB	0	26	7	9	23	29
71	URADE DIPAK SANJAY	29	15	26	7	9	23	44
72	UTTEKAR KANYA	26	13	47	12	9	23	47
73	WAGHMARE AKASH ARUN	27	14	39	10	9	23	46
74	WAYSE AADITI SUJAYKUMAR	26	13	31	8	9	23	43
75	YADAV ADITYA MADHAV	28	14	44	11	9	23	48
76	YUVRAJ SINGH	AB	0	40	15	10	25	40
77	ZAWAR VIDHI DINESH	26	13	66	17	9	23	52

Prof. Sujata Sachin Virulkar
Signature of Faculty

Hope Foundation's
International Institute of Information Technology, Pune
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION
Academic Year 2022-23 Semester II

SCHEDULE OF SLOW LEARNER ACTIVITIES

Class: SE 2019

Course Name: Principles of Communication Systems **Name of Faculty: Prof. Sujata Sachin Virulkar**

Lecture No.	Date	Time	Activity	Topic/Unit Covered
1	27-02-2023	3:45 to 4:45 PM	Discussion on unit no.1 and provided QB	Introduction to Communication System, Analog and Digital messages, regenerative repeaters, Signal Bandwidth & Power. Size & classification of signal, exponential Fourier series, concept of negative frequencies. Fourier transform and properties, Frequency shifting, Concept of baseband and bandpass signals, Signal transmission through LTI system.
2	10-03-2023	3:45 to 4:45 PM	Discussion on unit no.2 and provided QB	Need for frequency translation, Amplitude modulation (DSB-C), Double sideband Suppressed carrier(DSB-SC) modulation, Single sideband modulation (SSB), Vestigial Sideband modulation(VSB),Spectrum and Bandwidth of AM, DSB-SC, SSB & VSB, AM reception.
3	27-03-2023	3:45 to 4:45 PM	Solve the Examples on Unit1 &2	Examples on Fourier series and fourier transform.
4	04-04-2023	3:45 to 4:45 PM	Discussion on Insem Exam Question paper	Calculation of modulation index for AM wave, Modulation index for more than one modulating signals, Power and power efficiency,

Prof. Sujata Sachin Virulkar
Signature of Subject Teacher

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION
Academic Year 2022-23 Semester II

LIST OF SLOW LEARNERS

Class: SE 2019 **Course Name: Principles of Communication Systems**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)
1	AASHAY RAJENDRA KHER	25
4	ATHARVA SACHIN KHARE	27
5	AWATE SMRUTI RAMCHANDRA	30
8	BAGDE ROHIT AMAN	25
15	CHAKOTE TEJAS CHANDRAKANT	33
18	CHAVAN TANVI ANIL	27
21	FALGUN HEMANT PATIL	35
49	PATIL DISHANT MOHAN	31
56	RATHOD ANIKET BALAJI	30
57	SALI DARSHAN SUNIL	26
63	SHINDE VISHAKHA SANJEEV	35
70	TARKE PRATHMESH ANANT	29

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION
Academic Year 2022-23 Semester II

ATTENDANCE RECORD OF SLOW LEARNERS

Class: SE 2019 **Course Name: Principles of Communication Systems**

Roll No.	Name of the Student	Lect No	1	2	3	4	
		Date	27-02-2023	10-03-2023	27-03-2023	04-04-2023	
1	AASHAY RAJENDRA KHER		P	p	A	p	
4	ATHARVA SACHIN KHARE		p	p	p	p	
5	AWATE SMRUTI RAMCHANDRA		p	p	A	p	
8	BAGDE ROHIT AMAN		P	P	P	P	
15	CHAKOTE TEJAS CHANDRAKANT		P	A	P	P	
18	CHAVAN TANVI ANIL		P	P	A	P	
21	FALGUN HEMANT PATIL		P	P	P	P	
49	PATIL DISHANT MOHAN		P	P	P	P	
56	RATHOD ANIKET BALAJI		P	A	P	P	
57	SALI DARSHAN SUNIL		P	P	P	A	
63	SHINDE VISHAKHA SANJEEV		A	P	P	P	
70	TARKE PRATHMESH ANANT		P	P	A	P	
	Signature of Faculty						
	Signature of Academic Co-Ordinator						
	Signature of Head of Department						

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION
Academic Year 2022-23 Semester II

PERFORMANCE IMPROVEMENT OF SLOW LEARNERS

Class: SE 2019 **Course Name: Principles of Communication Systems**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)	Marks Obtined in Online/ Insem Exam (out of 30/50)	Marks Obtianed in End Sem Exam (out of 50/70)	Total Marks (out of 100)	Improved / Not Improved
1	AASHAY RAJENDRA KHER	25	15	30	45	Improved
4	ATHARVA SACHIN KHARE	27	14	28	42	Improved
5	AWATE SMRUTI RAMCHANDRA	30	16	42	58	Improved
8	BAGDE ROHIT AMAN	25	08	12	20	Not Improved
15	CHAKOTE TEJAS CHANDRAKANT	33	14	39	53	Improved
18	CHAVAN TANVI ANIL	27	12	41	53	Improved
21	FALGUN HEMANT PATIL	35	10	35	45	Improved
49	PATIL DISHANT MOHAN	31	12	29	41	Improved
56	RATHOD ANIKET BALAJI	30	16	28	44	Improved
57	SALI DARSHAN SUNIL	26	12	21	33	Not Improved
63	SHINDE VISHAKHA SANJEEV	35	12	29	41	Improved
70	TARKE PRATHMESH ANANT	29	16	28	44	Improved
	Signature of Faculty					
	Signature of Academic Co-Ordinator					
	Signature of Head of Department					

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DEPARTMENT OF COMPUTER ENGINEERING

Academic Year 2022-23 Semester II

SLOW AND ADVANCED LEARNER IDENTIFICATION

Course Code: 310254 C				Class: TE 2019				
Course Name: Cloud Computing				Name of Faculty: Prof. Nitin Alzende				
Roll No.	Name of Student	Class Test I (Out of 30)	50% Weightage	Overall % of Marks in Previous Exam (out of 100)	25% Weightage	Class Observation (on the Scale of 1-10)	25% Weightage	Total % Weightage (out of 100)
TC01	AADITYA THORAT	0	0	13.57	3	10	25	28
TC02	ABHANG MANDWALE	21	35	61.43	15	7	18	68
TC03	ABHISHEK DINKAR MAHAJAN	13	21.67	62.86	16	8	20	57
TC04	AMEY ASHOK BABLE	21	35	71.92	18	6	15	68
TC05	AMISHA PRAMOD PATIL	12	20	70.14	18	7	18	55
TC06	ANANYA RAY	20	33.33	53.14	13	7	18	64
TC07	ANANYA ABHIJEET PATIL	17	28.33	58.14	15	8	18	60
TC08	ANVAY AVINASH GAIKWAD	14	23.33	49.57	12	8	20	56
TC09	APURAV ASHOK DIVEKAR	10	16.67	72.57	18	9	23	57
TC10	ATHARVA MANOJ NAIR	14	23.33	57.29	14	8	20	58
TC11	ATHARVA RATNADEEP PINGALE	26	43.33	65.29	16	5	13	72
TC12	ATHARVA VIJAY BURKULE	13	21.67	31.57	8	5	13	42
TC13	BALRAJ MOHAN VAIDYA	0	0	58.00	15	8	20	35
TC14	CHAITALI PRAKASH GAVIT	27	45	49.00	12	6	15	72
TC15	DIVYA SANJAY NIPANE	20	33.33	64.57	16	8	20	69
TC16	GURUPRASAD KHARTADKAR	0	0	30.86	8	8	20	28
TC17	HARSHAL ARVIND PARATWAR	21	35	64.57	16	7	18	69
TC18	HARSHAVARDHAN DHOLE	20	33.33	52.14	13	8	20	66
TC19	HARSHVARDHAN VIJAY MORE	25	41.67	68.57	17	10	25	84

Roll No.	Name of Student	Class Test I (Out of 30)	50% Weightage	Overall % of Marks in Previous Exam (out of 100)	25% Weightage	Class Observation (on the Scale of 1-10)	25% Weightage	Total % Weightage (out of 100)
TC20	HITESH AMOL JAIN	28	46.67	66.29	17	8	25	88
TC21	KRISHA RAMESH ELLE	17	28.33	68.43	17	7	18	63
TC22	KSHITIJA KISHOR KASAR	13	21.67	53.29	13	5	13	47
TC23	KUNAL ASHOK PATIL	23	38.33	57.29	14	7	18	70
TC24	KUNAL NATHA JAWANE	12	20	64.71	16	6	15	51
TC25	KUNDAN MOHAN AGRAWAL	27	45	68.57	17	8	20	82
TC26	LAKSHMI TADEPALLI	22	36.67	61.14	15	6	15	67
TC27	MAHESH RAKHAMAJI GAIKWAD	27	45	71.57	18	8	20	83
TC28	MEENU RAJENDRAN PILLAI	15	25	73.71	18	8	20	63
TC29	NACHIKET ALHAD PACHCHHAPUR	20	33.33	64.00	16	8	20	69
TC30	NIKITA DINKAR DHOBALE	17	28.33	59.86	15	7	18	61
TC31	OM MANOHAR MAHALE	27	45	69.29	17	6	15	77
TC32	OMKAR SUBHASH PAPADE	22	36.67	61.71	15	10	25	77
TC33	PADMAKAR RAJENDRA PIMPALE	23	38.33	60.57	15	4	10	63
TC34	PALAK SUSHIL OZA	13	21.67	63.86	16	6	15	53
TC35	PANKAJ SIMON SALVE	0	0	8.14	2	6	15	17
TC36	PARTH YOGESH DESHPANDE	28	46.67	60.43	15	7	18	79
TC37	PIYUSH MILIND KALE	18	30	51.57	13	8	20	63
TC38	PRAJWAL PURANCHAND RAUT	18	30	61.43	15	8	20	65
TC39	PRANAV GAJANAN DHOTE	13	21.67	28.71	7	5	13	41
TC40	PRANAV SOMNATH GAIKWAD	27	45	70.00	18	7	18	80
TC41	PRASAD BALASAHEB THORVE	12	20	63.00	16	6	15	51
TC42	PRATHAMESH RAJESH INGOLE	14	23.33	66.57	17	7	18	57
TC43	PRATHAMESH RAMESH BHISE	26	43.33	72.43	18	6	15	76
TC44	PRATIKSHA VILAS DESHMUKH	0	0	58.00	15	6	15	30
TC45	RAGHAV DOGARNATH SHARMA	16	26.67	69.43	17	8	20	64
TC46	RUSHIKESH ANIL KULKARNI	13	21.67	61.57	15	6	15	52
TC47	SAHILSING MOHANSING RAJPUT	0	0	72.29	18	7	18	36
TC48	SAKSHI NAGNATH GAIKWAD	9	15	63.43	16	6	15	46
TC49	SANTOSH MUNJABA SARVADE	9	15	61.29	15	7	18	48
TC50	SARANG JALINDAR SHELKE	19	31.67	62.57	16	8	20	67
TC51	SHANTANU SHARAD BHOSALE	18	30	55.86	14	8	20	64
TC52	SHREEYASH ANIL MAHAJAN	23	38.33	59.29	15	7	18	71
TC53	SHREYA MILIND GAJBHIYE	14	23.33	54.14	14	8	20	57

Roll No.	Name of Student	Class Test I (Out of 30)	50% Weightage	Overall % of Marks in Previous Exam (out of 100)	25% Weightage	Class Observation (on the Scale of 1-10)	25% Weightage	Total % Weightage (out of 100)
TC54	SHREYANSHU SANJAY KODILKAR	28	46.67	68.14	17	9	23	86
TC55	SHUBHAM LAXMAN HIPPARGI	14	23.33	78.86	20	9	23	66
TC56	SRUSHTI RAMESH BHAMRE	15	25	66.14	17	8	20	62
TC57	SURABHI MANOJKUMAR ANNIGERI	22	36.67	66.14	17	6	15	76
TC59	TANAYA PAWAR	13	21.67	64.00	16	6	15	53
TC60	V VAMSHI	15	25	61.71	15	6	15	55
TC61	VAIBHAV DATTU DHAYGUDE	27	45	67.86	17	7	18	79
TC62	VAIBHAVI NITIN KATE	9	15	67.57	17	7	18	49
TC63	VISHNU SOMNATH SHINDE	20	33.33	65.43	16	8	20	70
TC64	VITTHAL AVINASH WAGHERE	22	36.67	63.14	16	7	18	70
TC65	YASH PRABHAKAR KHAIRNAR	26	43.33	65.29	16	7	18	77
TC66	YASH RAKESH DUSANE	28	46.67	72.29	18	7	18	82
TC67	YASH SATISH MITHAPELLI	17	28.33	56.71	14	8	20	63
TC68	YUVRAJ UJWAL KHELKAR	22	36.67	64.14	16	8	20	73
TC70	SHWETA LASHKARE	9	15	53.57	13	9	23	51
TC71	SAKSHI NIRNE	9	15	72.29	18	7	18	51
TC72	PIYUSHKA DESHMUKH	12	20	75.43	19	8	20	59
TC73	AKASH KAMBALE	22	36.67	51.00	13	7	18	67
TC74	GAURI KHANAPURE	22	36.67	63.29	16	6	15	67
TC75	VAISHNAVI GOHAD	12	20	76.43	19	8	20	59
TC76	SHRADDHA PATIL	13	21.67	64.86	16	6	15	53
TC77	CHAITANYA AMBEKAR	20	33.33	65.00	16	7	18	67

Prof. Nitin Alzende
Signature of Faculty

Hope Foundation's
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DEPARTMENT OF COMPUTER ENGINEERING
Academic Year 2022-23 Semester II

SCHEDULE OF SLOW LEARNER ACTIVITIES

Class: TE 2019
Course Name: Cloud Computing **Name of Faculty: Prof. Nitin Alzende**

Lecture No.	Date	Time	Activity	Topic/Unit Covered
1	21-03-2023	2:45- 3:45	Extra Session	Enterprise Data Storage
2	24-03-2023	2:45- 3:45	Extra Session	Types of Virtualization
3	27-03-2023	2:45- 3:45	Extra Session	Virtualization and Cloud Computing
4	31-03-2023	2:45- 3:45	Extra Session	Cloud Computing Applications

Prof. Nitin Alzende
Signature of Subject Teacher

Hope Foundation's
International Institute of Information Technology, Pune
DEPARTMENT OF COMPUTER ENGINEERING
Academic Year 2022-23 Semester II

List of Assignments/Projects given to Advanced Learners

Class: TE 2019
Course Name: Cloud Computing **Name of Faculty: Prof. Nitin Alzende**

Roll No.	Name of Student	Assignment
TC20	Harshvardhan More	Case Study on Mobile Cloud
TC38	Hitesh Jain	Case Study on Aurora Database
TC47	Kundan Agrawal	Case Study on Autonomic Database
TC55	Pranav Gaikwad	Case Study on Google Cloud Application
TC54	Shreyanshu Kodilkar	Case Study on Docker
TC57	Surabhi Annigeri	Case Study on Kubernetes
TC61	Vaibhav Dhaygude	Case Study on IOT and Cloud Convergence
TC65	Yash Khairnar	Case Study on Secure Cloud Software Testing
TC66	Yash Dusane	Case Study on Azure core concepts

Prof. Nitin Alzende
Signature of Subject Teacher

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DEPARTMENT OF COMPUTER ENGINEERING
Academic Year 2022-23 Semester II

LIST OF SLOW LEARNERS

Class: TE 2019 **Course Name: Cloud Computing**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)
TC01	AADITYA THORAT	28
TC13	BALRAJ MOHAN VAIDYA	35
TC16	GURUPRASAD KHARTADKAR	28
TC35	PANKAJ SIMON SALVE	17
TC44	PRATIKSHA VILAS DESHMUKH	30
TC47	SAHILSINGH RAJPUT	36

Sign of Faculty:

Hope Foundation's
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DEPARTMENT OF COMPUTER ENGINEERING
Academic Year 2022-23 Semester II

ATTENDANCE RECORD OF SLOW LEARNERS

Class: TE 2019 **Course Name: Cloud Computing**

Roll No.	Name of the Student	Lect No	1	2	3	4	5	6
		Date	21-03-2023	24-03-2023	27-03-2023	31-03-2023		
TC01	AADITYA THORAT		A	A	A	A		
TC13	BALRAJ MOHAN VAIDYA		P	P	P	P		
TC16	GURUPRASAD KHARTADKAR		P	P	P	P		
TC35	PANKAJ SIMON SALVE		P	P	P	P		
TC44	PRATIKSHA VILAS DESHMUKH		P	P	P	P		
TC47	SAHILSINGH RAJPUT		P	P	P	P		
		Signature of Faculty						
		Signature of Academic Co-Ordinator						
		Signature of Head of Department						

Hope Foundation's
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DEPARTMENT OF COMPUTER ENGINEERING
Academic Year 2022-23 Semester II

PERFORMANCE IMPROVEMENT OF SLOW LEARNERS

Class: TE 2019 **Course Name: Cloud Computing**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)	Marks Obtained in Online/ Insem Exam (out of 30/50)	Marks Obtained in End Sem Exam (out of 50/70)	Total Marks (out of 100)	Improved / Not Improved
TC01	AADITYA THORAT	28	AB	AB	AB	Not Improved
TC13	BALRAJ MOHAN VAIDYA	35	19	34	53	Improved
TC16	GURUPRASAD KHARTADKAR	28	14	28	42	Improved
TC35	PANKAJ SIMON SALVE	17	AB	AB	AB	Not Improved
TC44	PRATIKSHA VILAS DESHMUKH	30	20	38	58	Improved
TC47	SAHILSINGH RAJPUT	36	20	51	71	Improved
	Signature of Faculty					
	Signature of Academic Co-Ordinator					
	Signature of Head of Department					

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DEPARTMENT OF COMPUTER ENGINEERING
Academic Year 2022-23 Semester II

LIST OF ADVANCED LEARNERS

Class: TE 2019 **Course Name: Cloud Computing**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)
TC20	Harshvardhan More	84
TC38	Hitesh Jain	88
TC47	Kundan Agrawal	82
TC55	Pranav Gaikwad	80
TC54	Shreyanshu Kodilkar	86
TC57	Surabhi Annigeri	76
TC61	Vaibhav Dhaygude	79
TC65	Yash Khairnar	77
TC66	Yash Dusane	82

Sign of Faculty:

Case Study: Amazon Aurora Implementation at "Beat"

Background:

Beat aims to make every city a better place to live offering more efficient and easy to use mobility solutions, with safety, reliability and sustainability serving as our fundamental pillars. Beat's work is focused towards growing and developing the cities where the company operates in, always relying on innovation." Founded in 2011, the ride-hailing company's mission is to develop seamless mobility for a safe and sustainable urban life. Beat focuses on growing and developing the cities where it operates, continually searching for innovative ways to improve its application.

Challenges:

Database Performance and Scalability: On the average production cluster, Beat sees approximately 2,000 queries per second on the writer endpoint and more than 18,000 queries per second on the reader endpoint. Beat's existing MySQL database struggled to handle the increasing volume of product listings, customer data, and online traffic. Slow query response times were a common issue during peak sales periods.

High Availability and Data Durability: Downtime or data loss could result in lost revenue and damage the brand's reputation.

Operational Efficiency: The existing database required significant manual maintenance and tuning, leading to high operational costs and resource allocation.

Solution:

Beat decided to migrate their database to Amazon Aurora, Amazon Web Services' (AWS) managed relational database service known for its high performance, scalability, and availability. The migration process involved the following steps:

Data Migration: Beat utilized the AWS Database Migration Service (DMS) to replicate data from their existing MySQL database to Amazon Aurora with minimal downtime. DMS enabled a smooth transition by continuously capturing changes from the source database.

Performance Improvements: Amazon Aurora's architecture, featuring a distributed and fault-tolerant storage layer, improved query performance significantly. The ability to scale read

replicas on-demand allowed Beat to offload read traffic from the primary database, reducing the load.

High Availability: Amazon Aurora offered automatic failover, creating a highly available database cluster with minimal downtime. This ensured continuous operations for the retail chain.

Data Durability: Aurora's replication and automatic backups ensured data durability and data protection, critical for preserving customer records and transaction data.

Cost-Efficiency: The serverless capacity option allowed Beat to automatically adjust database capacity to match their workload. This feature optimized costs during periods of lower traffic, reducing operational expenses.

Results:

The adoption of Amazon Aurora had a profound impact on Beat's business:

Improved Performance: Query response times became consistently fast, even during peak periods. This led to enhanced user experience and customer satisfaction. There were some cases where performance increased by 5–10 percent.

High Availability: Amazon Aurora's automated failover mechanism significantly reduced downtime. Using AWS Graviton2-based instances, Beat can better accommodate spikes and support more traffic without needing to create a new instance.

Data Durability: Amazon Aurora's data replication and automatic backups ensured the safety and integrity of data. Beat could meet data protection regulations and customer privacy expectations.

Operational Efficiency: With Aurora's automation and self-tuning capabilities, Beat's database management became more efficient. The company saved time and resources on manual maintenance and tuning.

Cost Savings: The serverless capacity option enabled Beat to optimize costs by automatically adjusting the database capacity as needed, ultimately reducing operational expenses.

In conclusion, Beat's migration to Amazon Aurora proved to be a strategic move that addressed their database challenges. It not only improved database performance and scalability but also enhanced high availability, data durability, operational efficiency, and cost-effectiveness.

Advance Learner Assignment

Kundan Agrawal
TC25

CASE STUDY
Mobile CLOUD COMPUTING

Overview:

Mobile cloud computing is a technology that allows mobile devices to access cloud-based services and resources, such as applications, data storage, and processing power. It offers several benefits, including flexibility, scalability, and cost-effectiveness. Mobile cloud computing can be used in various industries, including healthcare, finance, education, and retail.

Mobile Cloud Computing (MCC) is an architectural approach that combines the processing power of mobile devices like smartphones or tablets with cloud-based resources. Remotely rather than locally, as a result of computational augmentations, MCC's mobile devices may augment resources from various cloud-based accounts. The combination creates a new kind of mobile computing that provides a seamless experience on any device, or when switching between devices.

Mobile Cloud Computing Architecture
The Mobile Cloud Computing Architecture Consists of Two Major Components.

The first major component is the virtualized computing core (VC), a hosted cloud service that hosts various cloud computing services needed to run on the mobile device.

The second major component is the client-side application (CSA): It executes the MCC applications on the host device. The CSA uses a cloud execution service when executing applications for a client.

During the execution of the MCC application in the CES, it can use various cloud resources to augment its capabilities.

Types Of Mobile Cloud Computing

Types of Cloud-Based Resources in MCC Are:

- Distant Immobile Cloud Computing
- Hybrid Cloud Computing
- Distant Mobile Clouds
- Proximate Immobile Computing Entities
- Proximate Mobile Computing Entities

A retail business that operates across multiple locations wants to streamline its operations by leveraging mobile cloud computing. The company has a large number of employees who work across different locations, and it wants to improve communication, collaboration, and data sharing among its employees. The company wants to explore the use of mobile cloud computing to provide its employees with easy access to company data and applications.

Objectives:

1. The objectives of the project are as follows:
2. Provide employees with access to company data and applications from any location using their mobile devices.
3. Improve collaboration and communication among employees.
4. Enhance productivity and efficiency by enabling employees to work remotely.
5. Ensure the security of company data and applications.

Solution:

The retail business decides to implement a mobile cloud computing solution that uses a combination of mobile devices, cloud-based servers, and mobile applications. The solution involves the following steps:

1. Mobile Device Management (MDM): The first step is to implement a Mobile Device Management (MDM) solution that enables the company to manage and secure its employees' mobile devices. The MDM solution provides a central platform to manage mobile devices, set policies, and secure data.

2. Cloud-based Servers: The company sets up cloud-based servers that provide a central location to store and access company data and applications. The servers are accessible from any location and can be easily scaled up or down depending on the business's needs.

3. Mobile Applications: The company develops mobile applications that enable employees to access company data and applications from their mobile devices. The applications are designed to be user-friendly and provide a seamless experience to employees.

4. Communication and Collaboration Tools: The company also integrates communication and collaboration tools such as email, chat, and video conferencing into the mobile applications. This enables employees to communicate and collaborate with each other easily, regardless of their location.

Benefits:

The mobile cloud computing solution provides the following benefits to the retail business:

1. Improved Productivity and Efficiency: Employees can access company data and applications from any location, which increases their productivity and efficiency.

2. Enhanced Communication and Collaboration: The mobile applications and communication tools enable employees to collaborate and communicate effectively, even when working remotely.

3. Reduced Costs: The solution reduces the need for employees to be physically present at the workplace, which can help reduce costs associated with office space, travel, and other expenses.

4. Increased Security: The mobile device management solution and cloud-based servers ensure the security of company data and applications, reducing the risk of data breaches.

In the healthcare industry, mobile cloud computing can be used to improve patient care by enabling healthcare professionals to access patient data from any location. Mobile applications can be used to collect and store patient data, which can be accessed by healthcare professionals through cloud-based servers. This enables healthcare professionals to make informed decisions about patient care, even when they are not physically present at the hospital or clinic.

In the finance industry, mobile cloud computing can be used to provide customers with easy access to financial services and applications. Mobile banking applications, for example, allow customers to check their account balances, transfer funds, and pay bills from their mobile devices. Cloud-based servers provide a secure location to store and access customer data, ensuring the privacy and security of financial information.

In the education industry, mobile cloud computing can be used to provide students and teachers with easy access to educational resources and applications. Mobile applications can be used to deliver online courses, provide access to e-books and other educational materials, and facilitate communication between students and teachers. Cloud-based servers provide a central location to store and access educational resources, ensuring that students and teachers can access these resources from any location.

In the retail industry, mobile cloud computing can be used to improve the customer experience by enabling employees to access customer data and applications from their mobile devices. Mobile applications can be used to manage inventory, process orders, and provide customer support. Cloud-based servers provide a central location to store and access customer data and applications, ensuring that employees can access this information from any location.

In conclusion, mobile cloud computing is a powerful technology that can be used in various industries to improve operations, increase productivity, and enhance the customer experience. Its benefits include flexibility, scalability, and cost-effectiveness, making it a popular choice among businesses of all sizes.

KAgrawal

Kundan Agrawal

Leveraging Google Cloud Applications for Business Success

Pranav Gaikwad

BE Computer Engineering

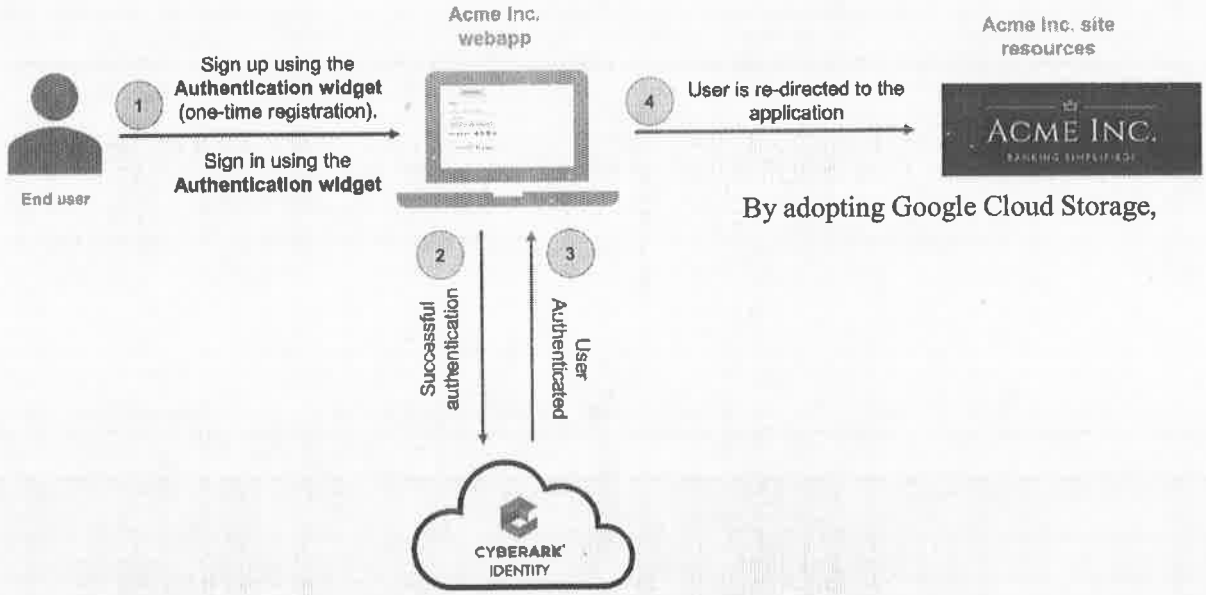
Introduction

In the digital age, businesses are constantly seeking efficient and cost-effective solutions to manage their data, streamline operations, and enhance customer experiences. Google Cloud applications offer a robust suite of tools and services that enable companies to achieve these goals. In this case study, we will explore how three different businesses have harnessed the power of Google Cloud applications to solve real-world challenges and achieve tangible benefits.

Case Study 1: Acme Widgets - Data Management Made Easy

Acme Widgets is a small manufacturing company that struggled with data management. They had a growing repository of product designs, customer orders, and manufacturing processes that were hard to organize. Acme Widgets decided to leverage Google Cloud Storage to centralize their data, making it easily accessible to employees and secure from data loss.

With Google Cloud Storage, they could store, manage, and access their data in a cost-effective and scalable way. The simple user interface allowed Acme Widgets' employees to upload, download, and share files without any technical hassle. This streamlined their internal operations and improved collaboration among teams.

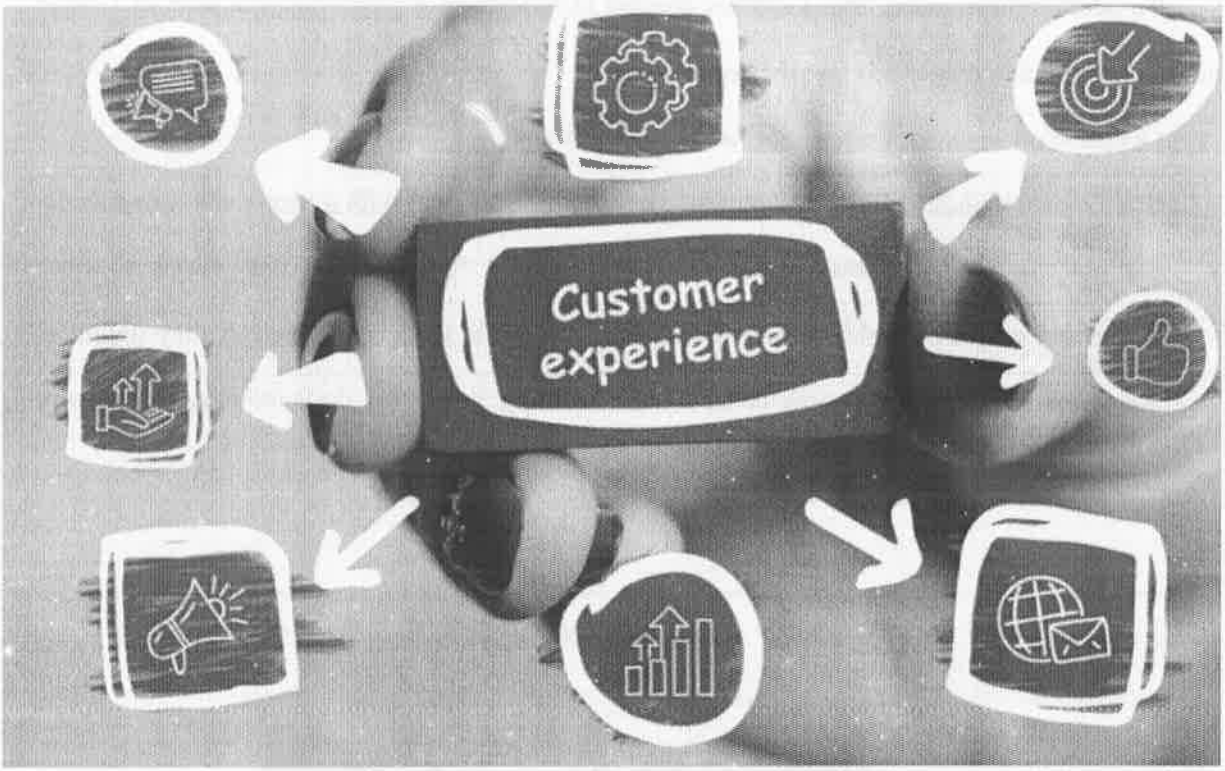


By adopting Google Cloud Storage,

Acme Widgets reduced data management costs, increased data accessibility, and boosted their overall efficiency.

Case Study 2: Gourmet Delights - Enhanced Customer Experiences

Gourmet Delights is a high-end restaurant that wanted to enhance its customer experiences. They decided to implement Google Cloud's AI and machine learning tools to analyze customer feedback, monitor social media, and provide personalized recommendations to their diners.



By using Google Cloud's AI services, Gourmet Delights could analyze customer reviews to identify trends and areas of improvement. They also used natural language processing to understand customer sentiment on social media and respond promptly to customer inquiries. Furthermore, Gourmet Delights utilized Google Cloud's recommendation engine to provide diners with personalized menu suggestions.

Gourmet Delights saw a significant improvement in customer satisfaction, increased online engagement, and a rise in repeat business.

Case Study: Star Logistics - Optimizing Supply Chain Efficiency

Star Logistics, a company specializing in the distribution of electronics and consumer goods, faced challenges related to their supply chain management. They were grappling with inefficiencies in inventory management, order fulfillment, and tracking shipments. This led to increased costs, customer dissatisfaction, and operational bottlenecks.

To address these issues, Star Logistics decided to implement a comprehensive suite of Google Cloud applications tailored to their specific needs:

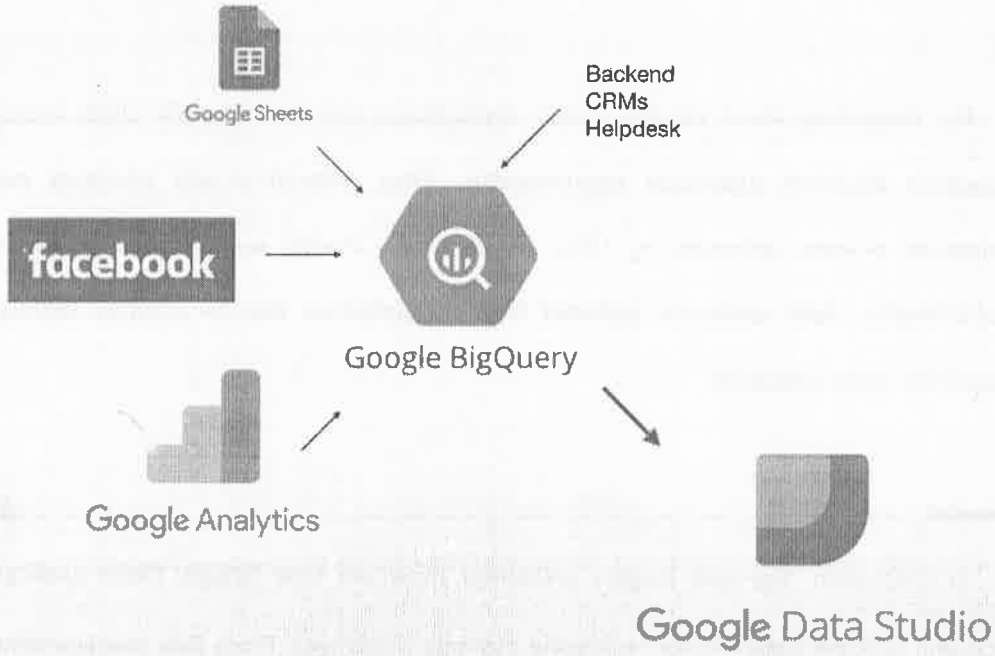
1. Google Workspace for Communication and Collaboration:

   Star Logistics adopted Google Workspace, which provided them with a secure and user-friendly platform for internal communication and collaboration. This enabled their teams to work seamlessly across multiple locations and time zones. With Google Workspace, they improved document sharing and real-time collaboration, resulting in quicker decision-making and more efficient project management.

2. Google Cloud BigQuery for Data Analytics:

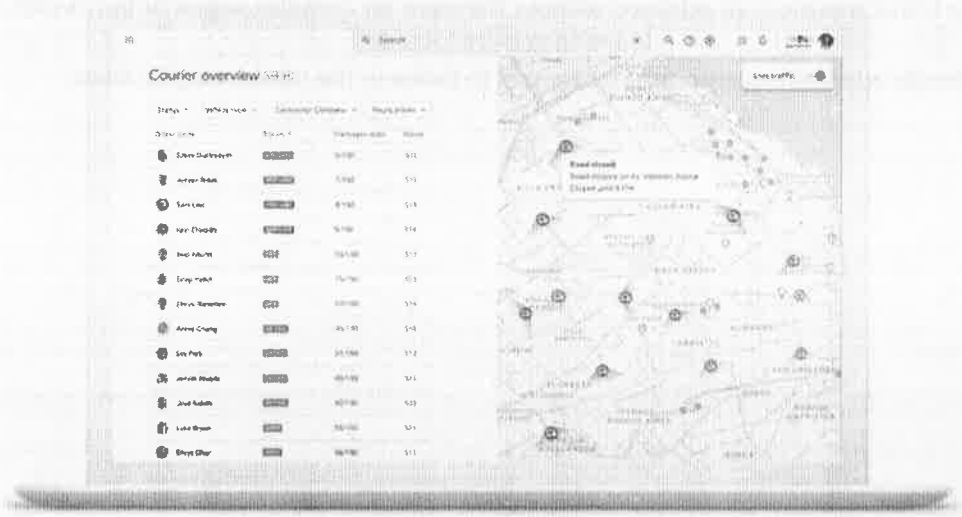
   To gain insights into their supply chain operations, Star Logistics implemented Google Cloud BigQuery. They used this tool to analyze historical data, forecast demand, and optimize inventory

levels. With the ability to process and visualize data in near-real-time, the company could make data-driven decisions to reduce excess inventory and prevent stockouts.



3. Google Maps Platform for Route Optimization:

To enhance their delivery operations, Star Logistics integrated Google Maps Platform into their systems. This allowed them to optimize delivery routes in real-time, reducing fuel consumption



and delivery times. The system also provided customers with accurate delivery estimates, leading to improved customer satisfaction.

By integrating these Google Cloud applications into their supply chain management, Star Logistics achieved significant improvements. They reduced excess inventory costs by 20%, improved on-time deliveries by 15%, and increased overall supply chain productivity by 30%. Additionally, their customers reported higher satisfaction due to accurate delivery times and improved communication.

Conclusion

In conclusion, the case studies presented showcase how Google Cloud applications provide practical and tangible solutions for real-world business challenges. From data management to customer experience enhancement, supply chain optimization, and scalable infrastructure, Google Cloud offers accessible tools that can benefit companies of all sizes. These success stories emphasize the measurable outcomes, including cost reductions, efficiency improvements, enhanced customer satisfaction, and overall business transformation, all achieved without the need for complex jargon or buzzwords. Google Cloud's user-friendly applications empower businesses to thrive in the modern digital lands

Shreyanshu Sanjay Kodilkar

TC54

Case study on Autonomic Cloud Computing

Abstract

As Clouds are complex, large-scale, and heterogeneous distributed systems, management of their resources is a challenging task. They need automated and integrated intelligent strategies for provisioning of resources to offer services that are secure, reliable, and cost-efficient. Hence, effective management of services becomes fundamental in software platforms that constitute the fabric of computing Clouds. In this direction, this paper identifies open issues in autonomic resource provisioning and presents innovative management techniques for supporting SaaS applications hosted on Clouds. We present a conceptual architecture and early results evidencing the benefits of autonomic management of Clouds

INTRODUCTION

Cloud computing "refers to both the applications delivered as services over the Internet, and the hardware and system software in the data centres that provide those services", according to Armbrust et al.[1], and "is a utilityoriented distributed computing system consisting of a collection of inter-connected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resource(s) based on service-level agreements established through negotiation between the service provider and consumers" according to Buyya et al. [2]. Both definitions capture the real essence of this new trend in distributed systems, where both software applications and computing infrastructure are moved from private environments to third party data centres, and made accessible through the Internet. Cloud computing delivers infrastructure, platform, and software (applications) as subscription-based services in a pay-as-you-go model. In industry, these services are referred to as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), respectively.

To support end-user applications, service providers such as Amazon [3], HP [4], and IBM [5] have deployed Cloud data centers worldwide. These applications range from generic text processing software to online healthcare. Once applications are hosted on Cloud platforms, users are able to access them from anywhere at any time, with any networked device, from desktops to smartphones. However, management of large-scale and elastic Cloud infrastructure offering reliable, secure, and cost-efficient services is a challenging task. It requires co-optimization at multiple layers (infrastructure, platform, and application) exhibiting autonomic properties. Some key open challenges are:

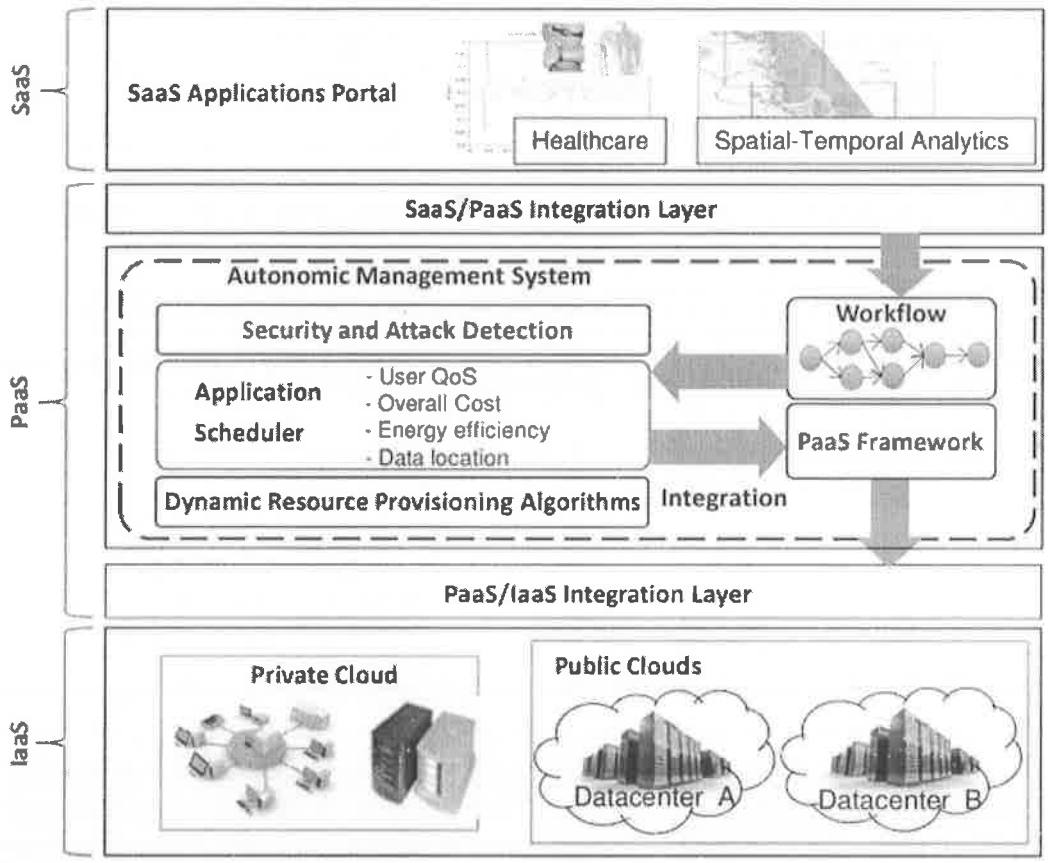
- Quality of Service (QoS). Cloud service providers (CSPs) need to ensure that sufficient amount of resources are provisioned to ensure that QoS requirements of Cloud service consumers (CSCs) such as deadline, response time, and budget

constraints are met. These QoS requirements form the basis for SLAs (Service Level Agreements) and any violation will lead to penalty. Therefore, CSPs need to ensure that these violations are avoided or minimized by dynamically provisioning the right amount of resources in a timely manner.

- Energy efficiency. It includes having efficient usage of energy in the infrastructure, avoiding utilization of more resources than actually required by the application, and minimizing the carbon footprint of the Cloud application.
- Security. Achieving security features such as confidentiality (protecting data from unauthorized access), availability (avoid malicious users making the application unavailable to legitimate users), and reliability against Denial of Service (DoS) attacks. The DoS is critical because, in a dynamic resource provisioning scenario, increase in the number of users causes automatic increase in the resources allocated to the application. If a coordinated attack is launched against the SaaS provider, the sudden increase in traffic might be wrongly assumed to be legitimate requests and resources would be scaled up to handle them. This would result in an increase in the cost of running the application (because provider will be charged by these extra resources) as well as a waste of energy.

Autonomic systems exhibit the ability of self-monitoring, self-repairing, and self-optimizing by constantly sensing themselves and tuning their performance [6]. Such autonomic features are also exhibited by market economy, where resources/services are priced so as to maintain equilibrium in the supply and demand. Clouds constitute an interesting venue to explore the use of autonomic features, because of their dynamism, large scale, and complexity.

ARCHITECTURE FOR AUTONOMIC CLOUD MANAGEMENT



Development of an autonomic management system and algorithms for dynamic provisioning of resources based on users QoS requirements to maximize efficiency while minimizing the cost of services for users. Creation of secure mechanisms to ensure that the resource provisioning system is able to allocate resources only for requests from legitimate users. The main components of the architecture are:

- SaaS Application Portal: This component hosts the SaaS application using a Web Service-enabled portal system. Users or brokers acting on their behalf submit service requests from anywhere in the world to these SaaS applications.
- Autonomic Management System and PaaS Framework: This layer serves as a Platform as a Service. Its architecture comprises of autonomic management components to be integrated in the PaaS level, along with modules enforcing security and energy efficiency.
- Infrastructure as a Service: This layer comprises distributed resources provided by private (enterprise networks) and public Clouds. Enterprise networks could leverage the resources in public Clouds by leasing them according to their user requirements, as and when needed.

SaaS is described as a software application deployed as a hosted service and accessed over the Internet. This model provides a scalable way for service providers and ISVs (Independent Software Vendors) to deliver their existing and/or new software applications to end-users without having to worry about the expertise or the capital budget to purchase, install, and manage large IT

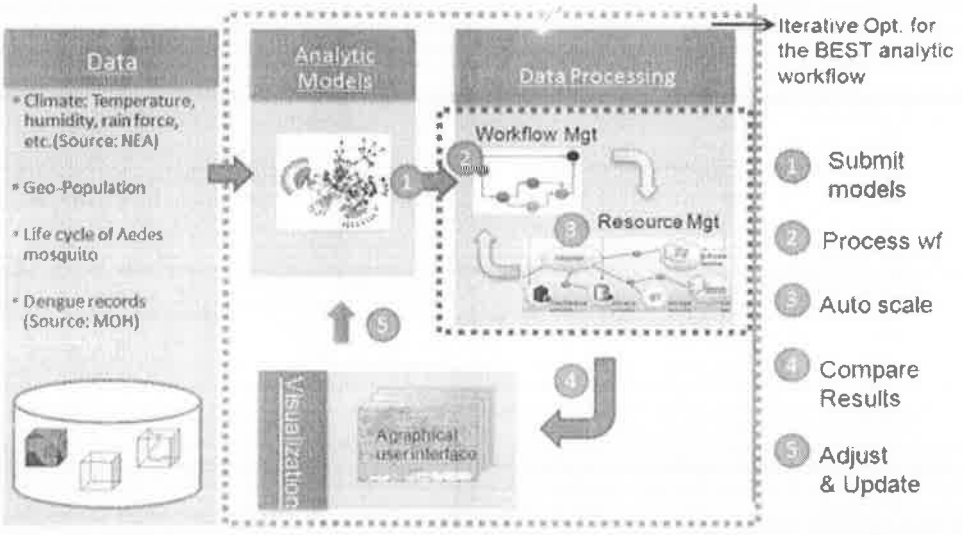
infrastructure. In order to manage the SaaS applications in large scale, the PaaS layer has to coordinate the Cloud resources according to the SaaS requirements, which is ultimately the user QoS is satisfied and also it does not make the provisioning too costly to the PaaS service provider.

The autonomic management system incorporates the following services in the PaaS layer: Security and attack detection, application scheduling, and dynamic provisioning. The autonomic manager is composed by the following components, with specific roles:

- Application Scheduler.
- Energy-efficient scheduler.
- Dynamic Resource Provisioning Algorithms.
- Security and Attack Detection

DATA ANALYTICS WORKFLOW ENGINE

The overview of the autonomic workflow management system and its use in data analytics application is depicted in below figure.. The performance requirements are achieved by partition of the data in different parallel tracks and execution of such tracks on multiple virtual machines simultaneously. To achieve this, the system autonomically optimizes its performance and finds the optimal provisioning for utilization and performance optimization. The iterative optimization is designed for workflow analytical applications in which a subset of the analytic tasks/functions is repeated during the analytics, forming a sort of "loop" in the workflow execution. When such loops are detected in the applications, the workflow engine profiles the early execution of tasks, storing information about their execution time. This profile information is used for optimal provisioning purposes in terms of cost and execution time (makespan). Hence, the performance of running the data analytics program is continuously improved by the system, which autonomically scales up and down provisioned resources to meet the users' performance requirements.



The autonomic adaptive workflow engine design allows the system to select the most suitable resources according to the user requirements (e.g., update frequency, cost, etc), schedule the privacy-sensitive data in private resources, and tolerate faults when failure happens. Provisioning of Cloud resources and scheduling of workflow tasks are automatically performed based on a budget constraint,

and the system schedules tasks to resources that can optimize the performance in terms of the total execution time while satisfying eventual budget requirements for application execution.

CONCLUSIONS

The growing adoption of Cloud computing as the preferred solution for hosting business and academic systems evidences the need for better solutions for management of such platforms. Considering that Cloud platforms are typically composed of thousands of physical hosts and virtual machines, connected by many network elements, management of such infrastructures is also becoming a challenging task. Furthermore, as Clouds get bigger visibility as a strategic asset for organizations, they will also increasingly become the target of cyber-attacks.

This case study presented the first steps towards an autonomic Cloud platform able to handle several of the above problems. Such a platform will be able to dynamically provision Cloud resources to applications in such a way that Quality of Service expectations of users are met with an amount of resources that optimizes the energy consumption required to run the application. Moreover, the platform will also be able to differentiate regular requests from DoS attacks against the infrastructure, avoiding the wastage of energy and budget caused by provision of resources to illegitimate requests.

Signature

Surabhi Annigeri
TC57
Cloud Computing Advanced Learner Assignment

Kubernetes Case Study: How Adidas Reduced Load Time by Half and Deploys New Features 3-4 Times a Day

Adidas is a global sportswear company with over 56,000 employees and billions of dollars in revenue. The company's website is one of the most visited e-commerce sites in the world, with millions of visitors each day.

In order to keep up with the high demand, Adidas needed a platform that could scale quickly and reliably. The company also needed a platform that would allow it to deploy new features quickly and easily.

Adidas chose Kubernetes, an open-source container orchestration platform, to meet its needs. Kubernetes allows Adidas to run its website and other applications on a cluster of virtual machines. Kubernetes automatically scales the cluster up or down based on demand, so Adidas never has to worry about running out of capacity.

Kubernetes also makes it easy for Adidas to deploy new features. Adidas can simply package its new features into containers and deploy them to Kubernetes. Kubernetes will automatically schedule the containers to run on the nodes in the cluster.

Since implementing Kubernetes, Adidas has seen a number of benefits, including:

- Reduced load time by half
- Increased deployment frequency from every 4-6 weeks to 3-4 times a day
- Reduced costs by using more efficient hardware resources
- Improved developer productivity by providing a self-service platform for deploying and managing applications

Adidas is now running 40% of its most critical systems on Kubernetes, and the company plans to migrate even more systems to Kubernetes in the future.

Why is Kubernetes so important for Adidas?

Kubernetes is important for Adidas because it allows the company to focus on its core business of selling sportswear. Kubernetes takes care of all the underlying infrastructure and operations, so Adidas can focus on developing new products and features for its customers.

How does Kubernetes help Adidas to scale quickly and reliably?

Kubernetes helps Adidas to scale quickly and reliably by automatically scaling the cluster up or down based on demand. This means that Adidas never has to worry about running out of capacity, even when traffic to its website spikes.

How does Kubernetes help Adidas to deploy new features quickly and easily?

Kubernetes helps Adidas to deploy new features quickly and easily by providing a self-service platform for deploying and managing applications. Adidas developers can simply package their new features into containers and deploy them to Kubernetes. Kubernetes will automatically schedule the containers to run on the nodes in the cluster.

What are the overall benefits of Kubernetes for Adidas?

The overall benefits of Kubernetes for Adidas include reduced load time, increased deployment frequency, reduced costs, improved developer productivity, and a focus on core business.

Conclusion

Kubernetes is a powerful platform that can help businesses of all sizes to scale quickly and reliably. Adidas is just one example of a company that has benefited from using Kubernetes. If you are looking for a platform that can help you to improve your application performance, deployment frequency, and overall efficiency, Kubernetes is a great option to consider.

Case Study on IOT and Cloud Convergence

1. Introduction

In recent years, the convergence of Internet of Things (IoT) and cloud computing has emerged as a pivotal force reshaping industries across the globe. The Internet of Things, characterized by a network of interconnected devices, has proliferated into virtually every facet of modern life, from smart homes to industrial automation. Concurrently, cloud computing has revolutionized the way businesses manage, store, and analyze data, providing an elastic, scalable infrastructure accessible from anywhere in the world. This case study delves into the profound impact of their convergence, examining how this synergy is revolutionizing connectivity and data management.

The critical challenge this case study addresses revolves around the unprecedented volume of data generated by IoT devices. As this data deluge surges, businesses face a pressing need for scalable, secure, and efficient solutions to process, store, and glean actionable insights from this information reservoir. The traditional on-premises infrastructure, designed for a less data-intensive era, is ill-equipped to meet these demands. The convergence of IoT and cloud computing presents a viable solution, promising not only to alleviate this data burden but also to unlock unprecedented opportunities for innovation, efficiency, and data-driven decision-making.

1.1 Background

Internet of Things (IoT)

IoT refers to the network of interconnected devices, sensors, and systems that collect and exchange data over the internet. These devices can range from smart appliances and wearables to industrial machinery and autonomous vehicles. IoT enables real-time monitoring, analysis, and control of physical objects, enhancing efficiency, productivity, and decision-making.

Cloud Computing

Cloud computing provides a platform for storing, managing, and processing data and applications over the internet. It offers scalability, flexibility, and cost-effective solutions for businesses, eliminating the need for on-premises infrastructure. Cloud services include Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

1.2 Objectives

1. To examine the ways in which IoT-generated data is processed and analyzed using cloud computing.
2. To understand the benefits and challenges of integrating IoT and cloud technologies.
3. To showcase real-world applications and use cases of IoT and cloud convergence.

2. Analysis

2.1 Convergence of IoT and Cloud Computing

Data Processing and Analytics:

IoT generates massive amounts of data. Cloud computing provides the necessary infrastructure for storage and processing of this data. The cloud's scalability and processing capabilities enable real-time analysis, allowing businesses to derive meaningful insights and make informed decisions.

Scalability and Flexibility:

Cloud platforms can scale resources dynamically based on the demands of IoT applications. This ensures that the infrastructure can handle sudden spikes in data volume, making it suitable for IoT applications where data flow can be highly variable.

Edge Computing:

Edge computing complements cloud computing by bringing processing power closer to the data source. This reduces latency and bandwidth requirements, making it ideal for applications requiring real-time responses. The convergence of IoT, cloud, and edge computing creates a powerful ecosystem for applications like autonomous vehicles, smart cities, and industrial automation.

2.2 Real-world Applications

Smart Cities:

IoT sensors deployed in urban environments collect data on traffic patterns, air quality, energy consumption, and more. This data is sent to cloud platforms for analysis, allowing city planners to make data-driven decisions to enhance efficiency, sustainability, and quality of life.

Industrial IoT (IIoT):

Manufacturing plants utilize IoT sensors to monitor equipment health, predict maintenance needs, and optimize production processes. Cloud-based platforms store and analyze this data, enabling predictive maintenance strategies and operational efficiency improvements.

Healthcare:

IoT-enabled medical devices, wearables, and remote patient monitoring systems collect patient data. This data is transmitted to the cloud for analysis, enabling healthcare providers to monitor patients remotely, deliver personalized care, and improve treatment outcomes.

3. Challenges

3.1 Security Concerns

As more data is transmitted and stored in the cloud, ensuring its security becomes paramount. This includes protecting against cyberattacks, data breaches, and unauthorized access.

3.2 Latency

While edge computing reduces latency, certain applications may still require ultra-low latency. Striking the right balance between edge and cloud computing is crucial for optimal performance.

4. Conclusion

The convergence of IoT and cloud computing represents a transformative force across various industries. By leveraging the strengths of both technologies, businesses can unlock new opportunities for innovation, efficiency, and data-driven decision-making. While challenges persist, ongoing advancements in technology are expected to address and mitigate these concerns, paving the way for a more connected and intelligent future.

CASE STUDY ON MICROSOFT AZURE

Yash Dusane

BE Computer Engineering

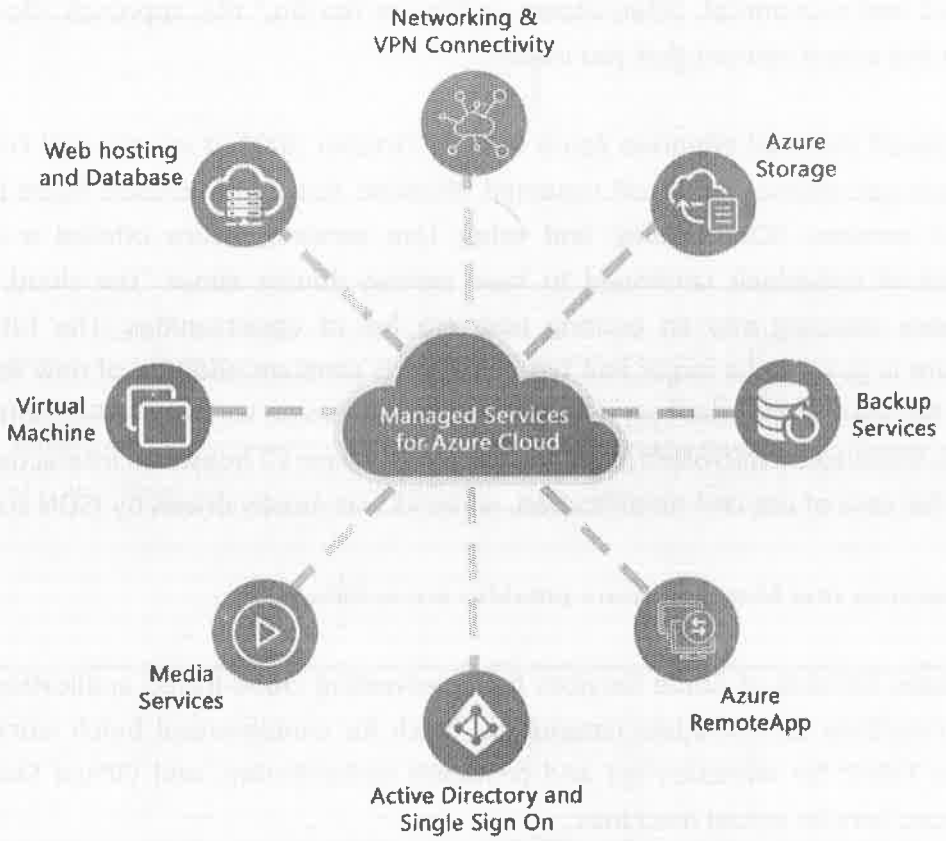
Similar to how Google has Google Cloud and Amazon has Amazon Web Service, or AWS.000, Microsoft has its own cloud platform called Azure. In general, it's a platform that lets us make use of Microsoft's assets. For instance, setting up a large server will demand a significant amount of money, time, space, and other resources. That's where Microsoft Azure comes into play. To ease our workload, it will give us access to virtual machines, quick data processing, analytical and monitoring tools, and more. Azure's pricing is likewise more straightforward and economical. Often known as "Pay as You Go," this approach allows you to just pay for the actual amount that you utilize.

Although Microsoft debuted Windows Azure in early October 2008, it wasn't until February 2010 that it was operational. Microsoft renamed Windows Azure to Microsoft Azure later in 2014. For.NET services, SQL services, and other Live services, Azure offered a service platform. A lot of individuals continued to have serious doubts about "the cloud." As a sector, we were stepping into an exciting new era full of opportunities. The future of Microsoft Azure is going to be larger and better. There is constant addition of new features and tools. So far, there have been two releases. It is a well-known variant of Microsoft Azure v1, which was followed by Microsoft Azure v2. Microsoft Azure v2 boasts an interactive user interface (UI) for ease of use and simplification, while v1 was mostly driven by JSON scripts.

Some of the services that Microsoft Azure provides are as follows:

1. **Compute:** Consists of Cloud Services for constructing cloud-based applications and APIs, Functions for serverless computing, Batch for containerized batch workloads, Service Fabric for microservices and container orchestration, and Virtual Machines and Scale Sets for virtual machines.
2. **Networking:** Azure offers a range of networking tools, such as the ExpressionRoute dedicated private network fibre connections, the Load Balancer, Application Gateway, VPN Gateway, Content Delivery Network, Azure DNS for domain hosting, and Network Watcher monitoring and diagnostics. The Virtual Network can also be used to connect to on-premise data centres.
3. **Storage:** Consists of a Data Lake Store, Backup, Site Recovery, Blob, Queue, File, and Disc storage, among other things.
4. **Web + Mobile:** With many services for application development and deployment, creating Web + Mobile applications is quite simple.
5. **Containers:** Kubernetes, DC/OS or Docker Swarm, Container Registry, and microservices tools are all supported by Azure's Container Service property.

6. **Databases:** A number of SQL-based databases and associated tools were also included in Azure.
7. **Data & Analytics:** HDInsight for Hadoop Spark, R Server, HBase, and Storm clusters are among the big data tools available on Azure.
8. **Security:** Key Vault, Azure Active Directory, Security Centre, and Multi-Factor Authentication Services are all part of Security + Identity.
9. **Developer Tools:** Contains cloud development services such as Xamarin cross-platform mobile development, HockeyApp mobile app deployment and monitoring, Azure DevTest Labs, Visual Studio Team Services, and more.



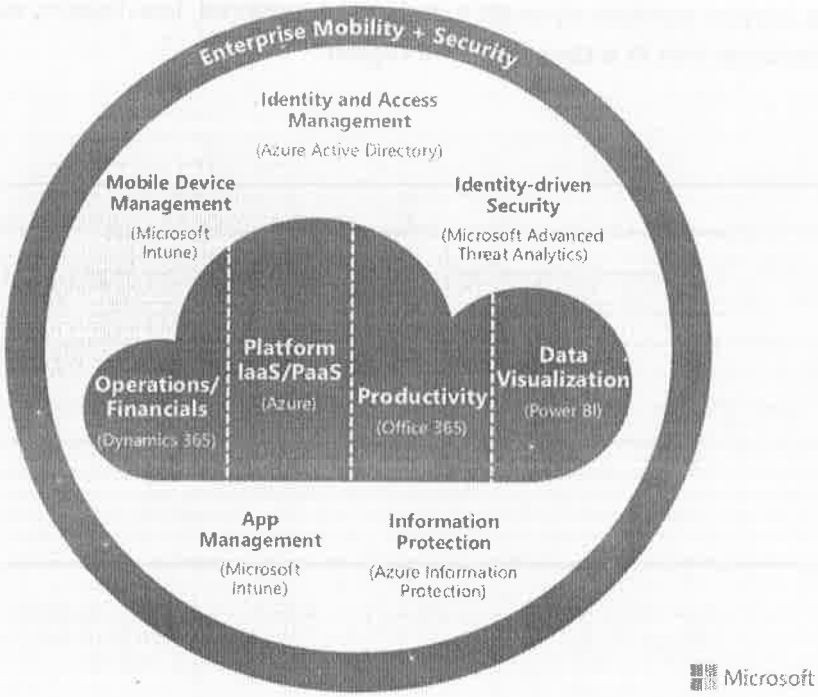
How does Azure work?

Like other cloud platforms, Azure is based on the virtualization technology. Software can simulate most computer hardware. A set of instructions that are permanently or semi-permanently encoded in silicon makes up computer hardware. Software instructions are mapped to hardware instructions via emulation layers. Virtualized hardware can function in software much like the real hardware thanks to emulation layers. A collection of actual servers housed in one or more data centers might be considered the cloud. For clients, the

data centers run virtualized hardware. How then can the cloud generate, launch, terminate, and erase millions of virtualized hardware instances for millions of users at once.

The user's virtualized hardware instances are run on server racks, often known as clusters. Nonetheless, a fabric controller, a type of cloud management software, is installed on some servers. The fabric controller is a multi-tasking, distributed application. It distributes services, keeps an eye on the condition of the server and the services that are operating on it, and repairs servers that malfunction.

Every fabric controller instance is linked to an additional group of servers running cloud orchestration software, which is commonly referred to as the front end. The web services, RESTful APIs, and internal Azure databases that are utilised by the entire clou are hosted on the front end.



Azure terminology

- **Resource:** An entity that's managed by Azure. Examples include Azure Virtual Machines, virtual networks, and storage accounts.
- **Subscription:** A logical container for your resources. Each Azure resource is associated with only one subscription. Creating a subscription is the first step in adopting Azure.
- **Azure account:** The email address that you provide when you create an Azure subscription is the Azure account for the subscription. The party that's associated with the email account is responsible for the monthly costs incurred by the resources in the subscription. When you create an Azure account, you provide contact

information and billing details, like a credit card. You can use the same Azure account for multiple subscriptions. Each subscription is associated with only one Azure account.

- **Account administrator:** The party associated with the email address that's used to create an Azure subscription. The account administrator is responsible for paying for all costs that incur by the subscription's resources.
- **Microsoft Entra ID:** The Microsoft cloud-based identity and access management service. Microsoft Entra ID lets your employees sign in and access resources.
- **Microsoft Entra tenant:** A dedicated and trusted instance of Microsoft Entra ID. When your organization signs up for a Microsoft cloud service subscription, it automatically creates a Microsoft Entra tenant. For example, Microsoft Azure, Intune, or Microsoft 365. An Azure tenant represents a single organization.
- **Region:** A set of Azure data centers that deploy inside a latency-defined perimeter. The data centers connect through a dedicated, regional, low-latency network. Most Azure resources run in a specific Azure region.

Submitted by:

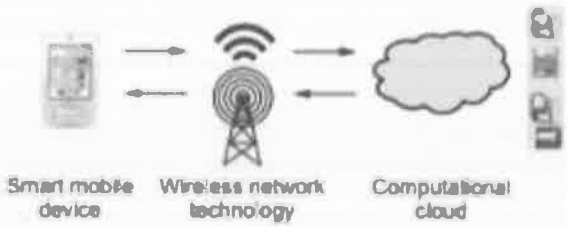
Harshvardhan More

Title:

Case Study of Mobile Cloud

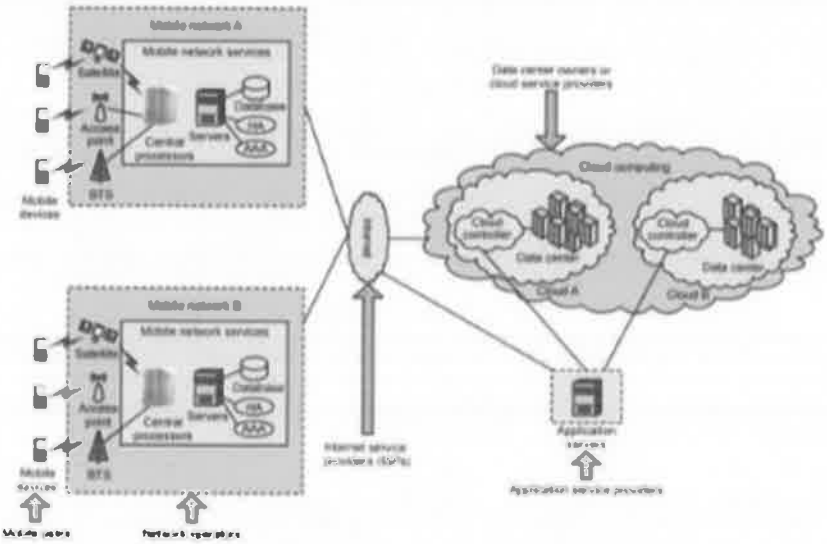
Case Study:

- One of the main benefits of cloud computing is reducing downtime and wasted expenditure for servers and other computer equipment. A given company is required to purchase the minimum amount of hardware necessary to handle the maximum points of stress on their system.
- Given situations where the strain and traffic are highly variable this leads to wasted money. For example, Amazon.com, a pioneer in cloud computing, at times used as little as 10% of their capacity so that they would have enough capacity to deal with those rarer high strain times.
- Mobile Cloud Computing (MCC) at its simplest, refers to an infrastructure where both the data storage and data processing happen outside of the mobile device.
- The below figure shows a block diagram of the mobile cloud.



- Mobile cloud applications move the computing power and data storage away from mobile phones and into the cloud, bringing applications and mobile computing to not just smartphone users but a much broader range of mobile subscribers.
- Mobile cloud applications move the computing power and data storage away from mobile devices and into powerful and centralized computing platforms located in clouds, which are then accessed over a wireless connection based on a thin native client.
- Mobile devices face many resource challenges (battery life, storage, bandwidth etc.).
- Cloud computing offers advantages to users by allowing them to use infrastructure, platforms and software by cloud providers at low cost and elastically in an on-demand fashion.
- Mobile cloud computing provides mobile users with data storage and processing services in clouds, obviating the need to have a powerful device configuration (e.g. CPU speed, memory capacity), as all resource-intensive computing can be performed in the cloud.

- The below figure shows mobile cloud computing architecture.



- In mobile cloud computing mobile network and cloud computing are combined, thereby providing an optimal service for mobile clients.
- Cloud computing exists when tasks and data are kept on individual devices. Applications run on a remote server and are then sent to the client.
- Here the mobile devices are connected to the mobile networks through the base stations; they will establish and control the connections (air interface) and functional interfaces between the mobile networks and mobile devices.
- Mobile users send service requests to the cloud through a web browser or desktop application. The information is transmitted to the central processors that are connected to the servers providing mobile network services.
- Here, services like AAA (Authentication, Authorization, and Accounting) can be provided to the users based on Home Agent (HA) and subscriber's data stored in databases.
- Mobile devices are connected to the mobile networks via base stations that establish and control the connections and functional interfaces between the networks and mobile devices.
- Mobile users' requests and information are transmitted to the central processors that are connected to servers providing mobile network services.
- The subscribers' requests are delivered to a cloud through the Internet.
- In the cloud, cloud controllers process the requests to provide mobile users with the corresponding cloud services

Advantages:

1. Saves battery power

2. Makes execution faster

3. Improves data storage capacity and processing power

4. Improves reliability and availability: Keeping data and applications in the cloud reduces the chance of loss on mobile devices

5. Dynamic provisioning Dynamic on-demand provisioning of resources on a fine-grained, self-service basis.

Disadvantages:

1. Must send the program states (data) to the cloud server
2. Network latency can lead to execution delay.

Mobile Cloud Applications

1. Mobile Gaming

- M-game is a high-potential market generating revenues for service providers.
- Can completely offload game engine requiring large computing resources (eg, graphic rendering) to the server in the cloud.
- Offloading can also save energy and increase game playing time (eg MAUI allows fine-grained energy-aware offloading of mobile codes to a cloud)
- The rendering adaptation technique can dynamically adjust the game rendering parameters based on communication constraints and gamers' demands.

2. Mobile Healthcare

- M-healthcare is to minimize the limitations of traditional medical treatment (eg, Small storage, security/privacy, medical errors, ...)
- M-healthcare provides mobile users with convenient access to resources (eg, medical records)
- M-healthcare offers hospitals and healthcare organizations a variety of on-demand services on clouds

3. Mobile Learning

- M-learning combines e-learning and mobility
- Traditional m-learning has limitations on the high cost of devices/networks, low transmission rate, and limited educational resources.
- Cloud-based m-learning can solve these limitations
- Enhanced communication quality between students and teachers
- Help learners access remote learning resources

4. Mobile Commerce

- M-commerce allows business models for commerce using mobile devices
- Examples: Mobile financial, mobile advertising, mobile shopping
- M-commerce applications face various challenges
- Integrated with the cloud can help address these issues
- Example: Combining 3G and cloud to increase data processing speed and security level.

Conclusion:

Thus, we have successfully studied Mobile Cloud.

Hope Foundation's
International Institute of Information Technology, Pune

DEPARTMENT OF INFORMATION TECHNOLOGY
Academic Year 2022-23 Semester II

SLOW AND ADVANCED LEARNER IDENTIFICATION

Course Code: 414452				Class: BE 2019				
Course Name: Elective-VI (Blockchain Technology)				Name of Faculty: Sonali Patil				
Roll No.	Name of Student	Class Test I (Out of 30)	50% Weightage	Overall % of Marks in Previous Exam (out of 100)	25% Weightage	Class Observation (on the Scale of 1-10)	25% Weightage	Total % Weightage (out of 100)
		30	50	80	25	10	25	100
BI01	AAYUSH NAVIN MUNSHI	23	38	75.86	19	6	15	72
BI02	ADITYA SANJAYKUMAR	25	42	72.93	18	5	13	73
BI03	AHER SAMARTH NAVNATH	28	47	75.29	19	6	15	81
BI04	AKHIL SHAILESH BHALERAO	28	47	84.79	21	7	18	86
BI05	ARYA AMOL PATHRIKAR	27	45	76.71	19	4	10	74
BI06	ARYA KISHOR BAGDE	25	42	78.07	20	6	15	77
BI07	ASEEM ADVAIT KHANDEKAR	26	43	84.21	21	7	18	82
BI08	BALANI RAJ SHYAM	24	40	76.79	19	8	20	79
BI09	BANDEWAR MAHESH	23	38	88.71	22	8	20	80
BI10	BHUTRA RADHIKA	29	48	85.86	21	8	20	89
BI11	BORADE AISHWARYA VAMAN	22	37	77.14	19	8	20	76
BI12	CHATAP ABHIJEET ANURATH	26	43	85.57	21	8	20	84
BI13	CHAVAN ROHAN SANJAY	29	48	81.14	20	8	20	88
BI14	CHAWADE AYUSHI ASHISH	23	38	81.64	20	10	25	83
BI15	CHOUDHARI MRUNAL RAVINDRA	24	40	76	19	8	20	79
BI16	DANI AKSHADA JAIPRAKASH	27	45	83.43	21	8	20	86
BI17	DHAKE KHUSHI HEMANT	29	48	86.79	22	10	25	95
BI18	DHAWALE SANKET SAINATH	25	42	83.57	21	6	15	78

BI19	GHATGE AISHWARYA SHASHIKANT	30	50	80.57	20	8	20	90
BI20	GIRI ANJALI BALASAHEB	25	42	81.14	20	8	20	82
BI21	GOSAVI OM PRAMOD	26	43	85.36	21	8	20	84
BI22	GUNJAL ANKIT SHANTARAM	24	40	83.14	21	8	20	81
BI23	GUNJAN KANTILAL AGRAWAL	29	48	81.29	20	9	23	91
BI24	INAMKE PRUTHVI UMESH	29	48	78.43	20	7	18	86
BI25	JADHAV SHRUTI VIJAY	30	50	81.64	20	8	20	90
BI26	JAGRUTI AKASH PATEL	18	30	78.5	20	8	20	70
BI27	JOSHI BHAVESH CHANDRAKANT	29	48	86.64	22	9	23	93
BI28	KEDAR PRAKASH KARALE	28	47	82.71	21	9	23	91
BI29	KHAIRNAR KALPESH SURESH	29	48	86.79	22	10	25	95
BI30	KHAKHI MANAV BRIJESHBHAI	27	45	82	21	9	23	89
BI31	KHAMKAR VAISHNAVI NITIN	27	45	82.29	21	9	23	89
BI32	KOKARE ATHARVA SANJAY	24	40	65.21	16	4	10	66
BI33	KOLHAPURE ADINATH DNYANOBA	24	40	85.86	21	8	20	81
BI34	KOLI VIKRANT RAJKUMAR	24	40	80	20	6	15	75
BI35	KURHADE JITWAR VISHWAS	24	40	79.71	20	6	15	75
BI36	LACHAKE OM HEMANT	23	38	85.57	21	8	20	79
BI37	LENDE RUCHA SANJAY	28	47	87.21	22	8	20	89
BI38	MAHADIK PRANAV RAJARAM	23	38	77.36	19	6	15	72
BI39	MAHAJAN RITU YUVARAJ	23	38	84.5	21	9	23	82
BI40	MAHALE YASHASHREE SUNDARLA	26	43	86.57	22	8	20	85
BI41	MAHALLE HIMANSHU ANIL	26	43	79.71	20	8	20	83
BI42	MALUSARE PRANAY PRABHAKAR	29	48	84.86	21	6	15	84
BI43	MALVIWALA MUSTAFA	25	42	80.79	20	8	20	82
BI44	MOHITE ASMITA RAJARAM	24	40	80.5	20	8	20	80
BI45	MUSALE RUTUJA SHARAD	29	48	75.79	19	8	20	87
BI46	NAIR RIA RAJ	30	50	80.36	20	8	20	90
BI47	NANDRE JANVI RAJENDRA	27	45	89.71	22	8	20	87
BI48	NAWALE ADITYA BALASAHEB	27	45	82.86	21	8	20	86
BI49	NIKITA GANESH RATHOD	27	45	77.93	19	8	20	84
BI50	NIKITA MUNNA VERMA	24	40	81.64	20	9	23	83
BI51	PARDESHI SAURABH RANJIT	28	47	70.93	18	6	15	80
BI52	PATIL DAMINI ANAND	25	42	80.64	20	8	20	82
BI53	PATIL NEEDHI MAHENDRA	23	38	80.86	20	8	20	78
BI54	PATIL PARTH ASHOK	27	45	82.5	21	8	20	86
BI55	PAWAR DNYANESHWAER	24	40	72.07	[illegible]	5	13	71
BI56	PAWAR JANHAVI VIJAY	24	40	79.5	20	7	18	78
BI57	PAWAR ROHINI NIMBA	[illegible]	48	80.14	20	8	20	88

BI58	PENSALWAR OMKAR KRAVIN	AB	AB	77.43	19	6	15	66
BI59	PINGLE AKHILESH PRASAD	28	47	81.79	20	7	18	85
BI60	PRATHAM SONAWANE	20	33	86.29	22	8	20	75
BI61	RAUT SIDDHESHWAR	26	43	83.57	21	8	20	84
BI62	ROHIT SUNIL CHOUDHARY	24	40	82.93	21	7	18	79
BI63	SAHOO DIBYANSU DEBARAJ	25	42	68.57	17	8	20	79
BI64	SAMYAK KUMAR SAHOO	26	43	82.93	21	8	20	84
BI65	SAURABH KUMAR PATRA	23	38	78	20	8	20	78
BI66	SHARMA SHREYASH	24	40	79	20	6	15	75
BI67	SIDDARTH KOUL	23	38	80.86	20	8	20	78
BI68	SIDDHESH DINESH MHATRE	24	40	82.36	21	9	23	84
BI69	SOLE TEJAS UDAY	25	42	81.36	20	8	20	82
BI70	SWARNIM RAI	29	48	86.86	22	8	20	90
BI71	TAKALE PRIYANKA RAJENDRA	25	42	82.86	21	8	20	83
BI72	TARTE ANAND VARDHAMAN	22	37	81.79	20	8	20	77
BI73	THOLE KHOOSHI MANOJ	29	48	83.29	21	8	20	89
BI74	TOLE MANAS ARUN	28	47	83.71	21	8	20	88
BI75	TUNGAR MAYUR SHIVAJI	25	42	76.43	19	7	18	79
BI76	VARSHITHA	27	45	85	21	9	23	89
BI77	VYAVAHARE PIYUSHA DEEPAK	24	40	85	21	8	20	81

Sonali Patil

Signature of Faculty

Hope Foundation's
International Institute of Information Technology, Pune
DEPARTMENT OF INFORMATION TECHNOLOGY
Academic Year 2022-23 Semester II

LIST OF ADVANCED LEARNERS

Class: BE 2019 **Course Name: Elective-VI (Blockchain Technology)**

Roll No.	Name of the Student	Total % Weightage Based on Parameter (out of 100)
BI17	DHAKE KHUSHI HEMANT	95
BI23	GUNJAN KANTILAL AGRAWAL	91
BI28	KEDAR PRAKASH KARALE	91
BI27	JOSHI BHAVESH CHANDRAKANT	93
BI29	KHAIRNAR KALPESH SURESH	95

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Sign of Faculty:_____

Hope Foundation's
International Institute of Information Technology, Pune
DEPARTMENT OF INFORMATION TECHNOLOGY
Academic Year 2022-23 Semester II

List of Assignments/Projects given to Advanced Learners

Class: BE 2019
Course Name: Elective-VI (Blockchain Technology) **Name of Faculty: Sonali Patil**

Roll No.	Name of Student	Assignment
BI17	DHAKE KHUSHI HEMANT	How is blockchain integrated with cloud computing
BI23	GUNJAN KANTILAL AGRAWAL	Applications of Blockchain-based Cloud Computing
BI28	KEDAR PRAKASH KARALE	Integration of Blockchain and AI
BI27	JOSHI BHAVESH CHANDRAKANT	Application of Integration of Blockchain and AI
BI29	KHAIRNAR KALPESH SURESH	How AI and Blockchain are Changing Businesses

Sonali Patil
Signature of Subject Teacher

International Institute of Information Technology Pune

Hope Foundation's
International Institute of Information technology, Pune
DEPARTMENT OF INFORMATION TECHNOLOGY
Academic Year : 2022-23, Semester - II

Class : BE IT

ACTIVITY : Student Teams Achievement Divisions (STAD) Activity

Date: 18.04.23

Group No.	Roll No.	Name of the group member	Name of the Active Learning	Sign
1	01	Aayush Munshi	ORAICHAIN (ORAI) An AI Layer 1 Blockchain Built on Cosmos.	
	02	Aditya Kolekar		
	03	Samarth Aher		
	04	AKHIL BHALERAO		
	05	Aaya Pathrikar		
	06	Arya Bagde		
	07	Aseem Khandekar		
	08	Raj Balani		
	09	mahesh P. Bandewar		
	10	Radhika Bhutra		
	11	Aishwarya borade		
	12	Abhijeet Chatup		
	13	Rohan Chavan		
	0			

18.04

Subject Coordinator
Prof.Sonali Patil

International Institute of Information Technology * Pune *

Hope Foundation's
International Institute of Information technology, Pune
DEPARTMENT OF INFORMATION TECHNOLOGY
Academic Year : 2022-23, Semester - II

Class : BE IT

ACTIVITY : Student Teams Achievement Divisions (STAD) Activity

Date: 18.04.23

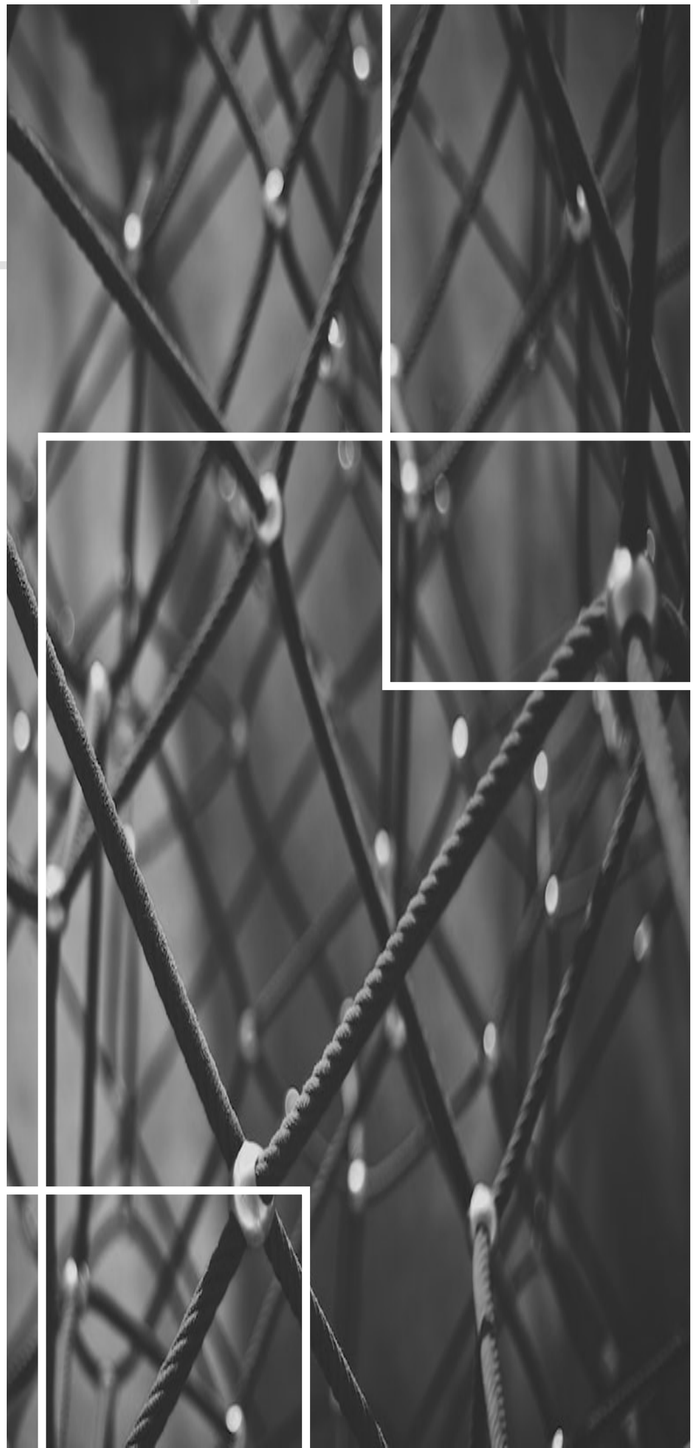
Group No.	Roll No.	Name of the group member	Name of the Active Learning	Sign
2	BI14	Ayushi Chawade	Fetch.ai FET. The AI Layer Blockchain built on Cosmos	
	BI15	Mrinal Choudhari		
	BI16	Akshada Dani		
	BI17	Khushi Dhake		
	BI18	Sanket Dhawale		
	BI19	Aishwarya Ghatge		
	BI20	Anjali Giri		
	BI21	Om Gosavi		
	BI22	Ankit Gunjal		
	BI23	Gunjan Agrawal		
	BI24	Prathmi Dhamke		
	BI25	Shruti Jadhav		
	BI26	Jagruti Patel		

18.04.23

Subject Coordinator
Prof.Sonali Patil

International Institute of Information Technology Pune

PHALA NETWORK: REVOLUTIONIZING BLOCKCHAIN PRIVACY AND SECURITY FOR ENTERPRISE SOLUTIONS

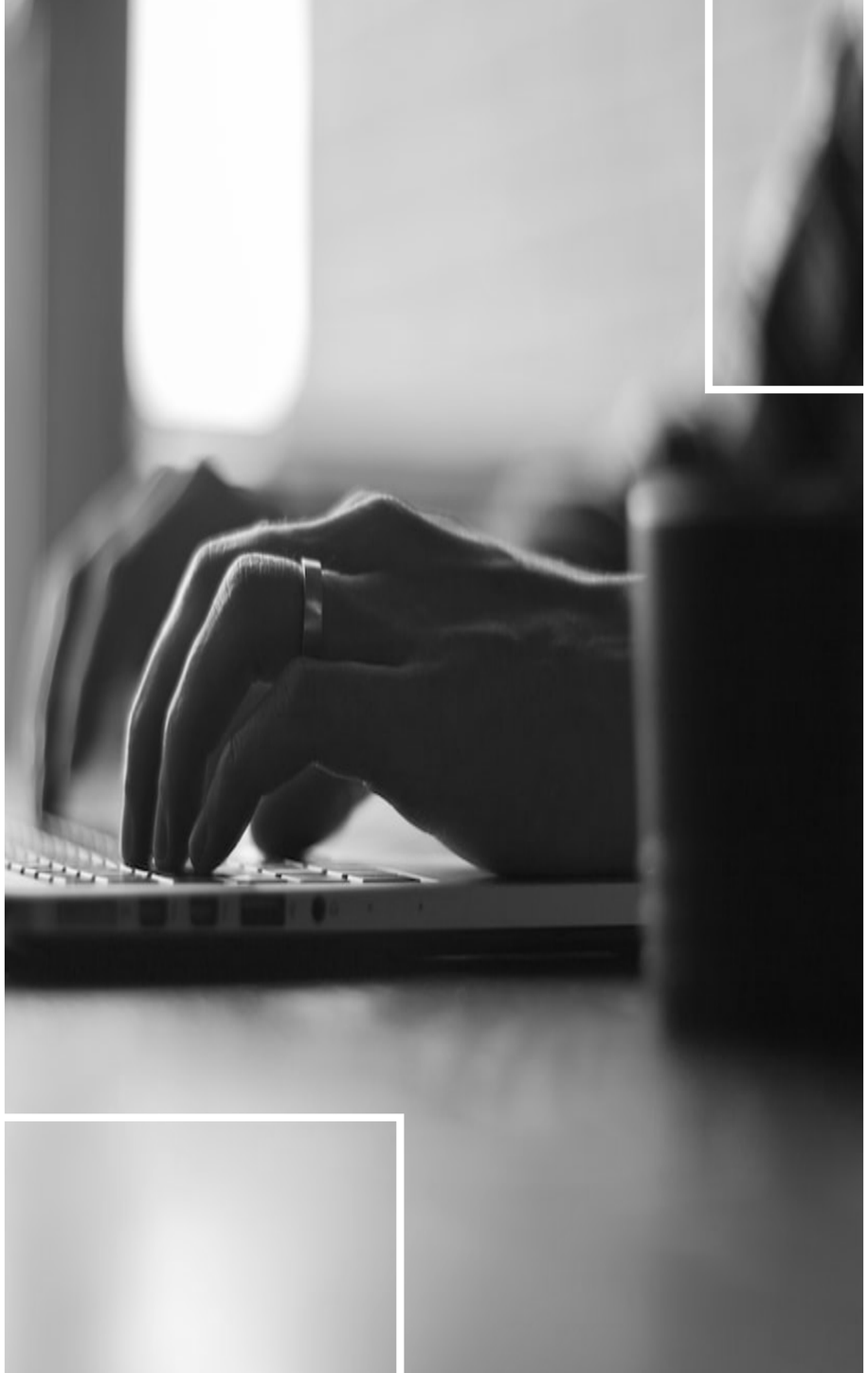


1. INTRODUCTION TO PHALA NETWORK

Phala Network offers revolutionary privacy and security solutions for enterprises built on top of blockchain. It seeks to provide enhanced user privacy, encrypted data analytics, and end-to-end security solutions for enterprises to unlock the full potential of distributed ledger technology.

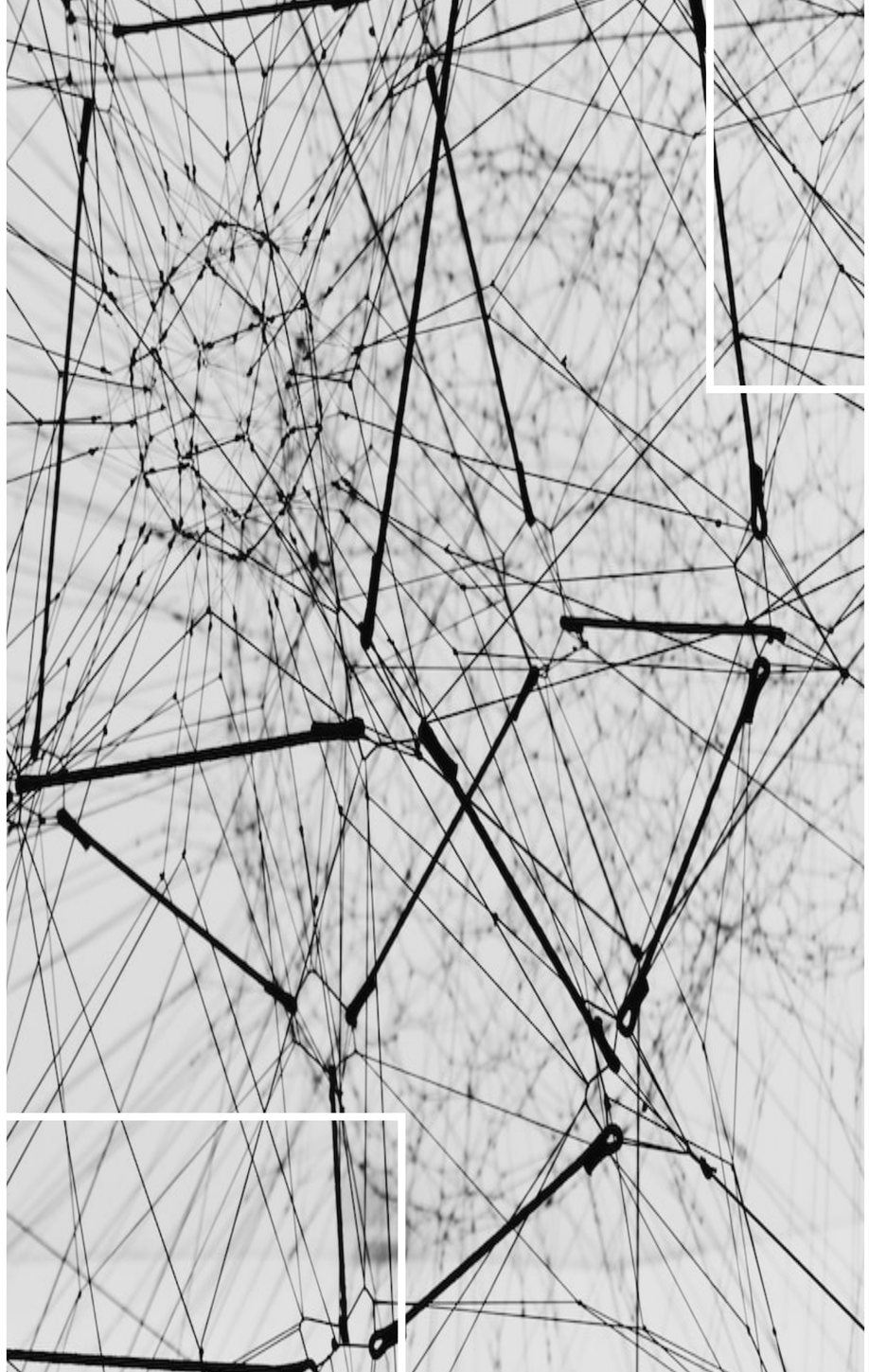
2. BLOCKCHAIN PRIVACY CONCERNS

Phala Network provides enhanced privacy of transactions, addresses, and inputs/outputs. Its privacy-aware engineering protects user data, maintains decentralized transactional anonymity, and reduces the risk of data breaches. Moreover, the solution supports restricted access of confidential data and information.



3. ENTERPRISE SECURITY NEEDS

Phala Network provides enhanced security for enterprise users with features like secure enclave, machine learning-based transaction anomaly detection and support for whitelisting and blacklisting. These features protect the blockchain and users by mitigating the risks of fraud and data leakage, ensuring comprehensive data security and confidential access controls.

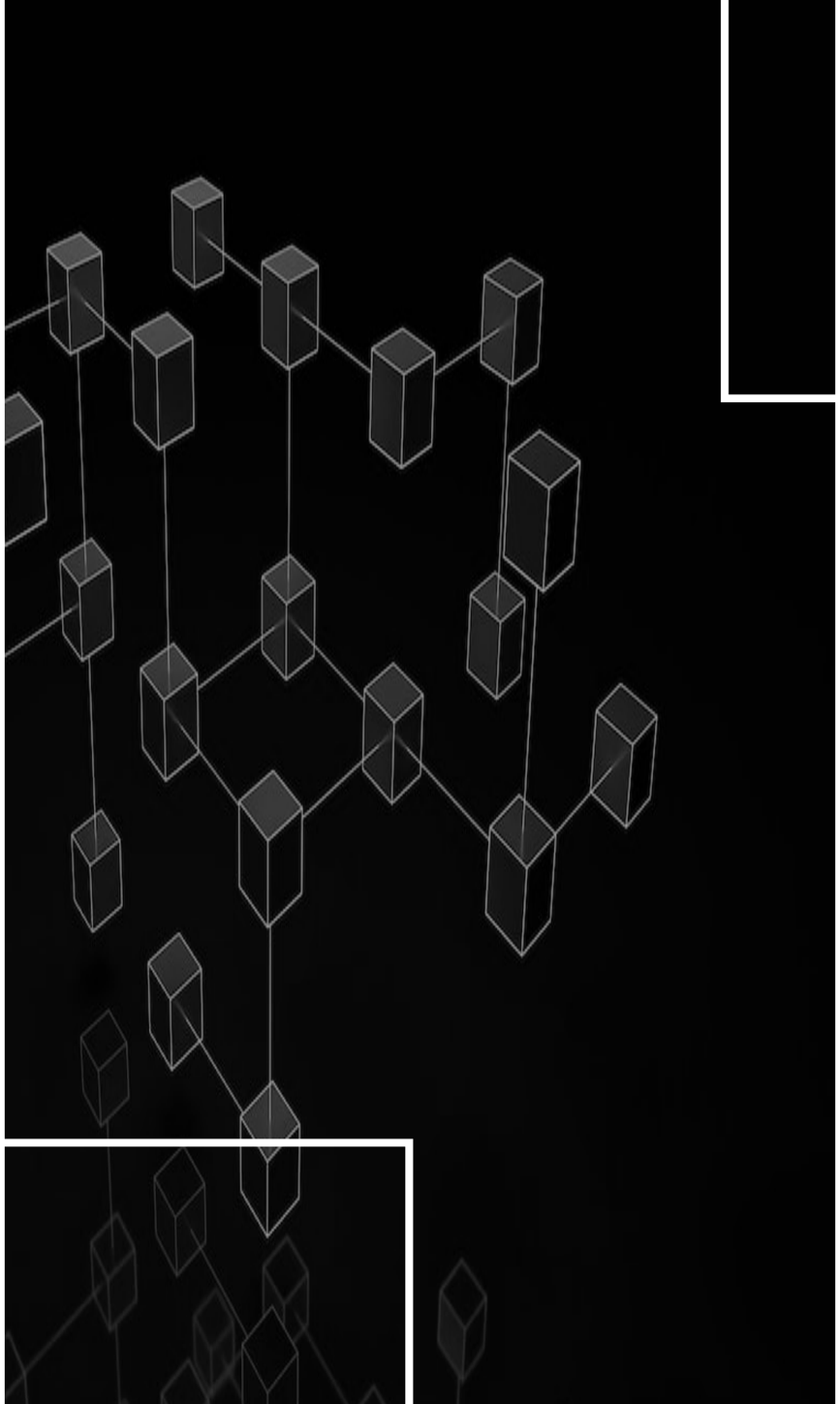


4. PHALA NETWORK'S UNIQUE SOLUTIONS

Using Secure Enclave, Phala Network ensures all enterprise data is encrypted and inaccessible to unauthorized users. Transactions must meet strict criteria before they can be processed, protecting users from transaction frauds. With ML-based Anomaly Detection, Phala Network can quickly identify any suspicious transactions and take preventive measures. Lastly, Phala provides blacklisting and whitelisting of trusted participants.

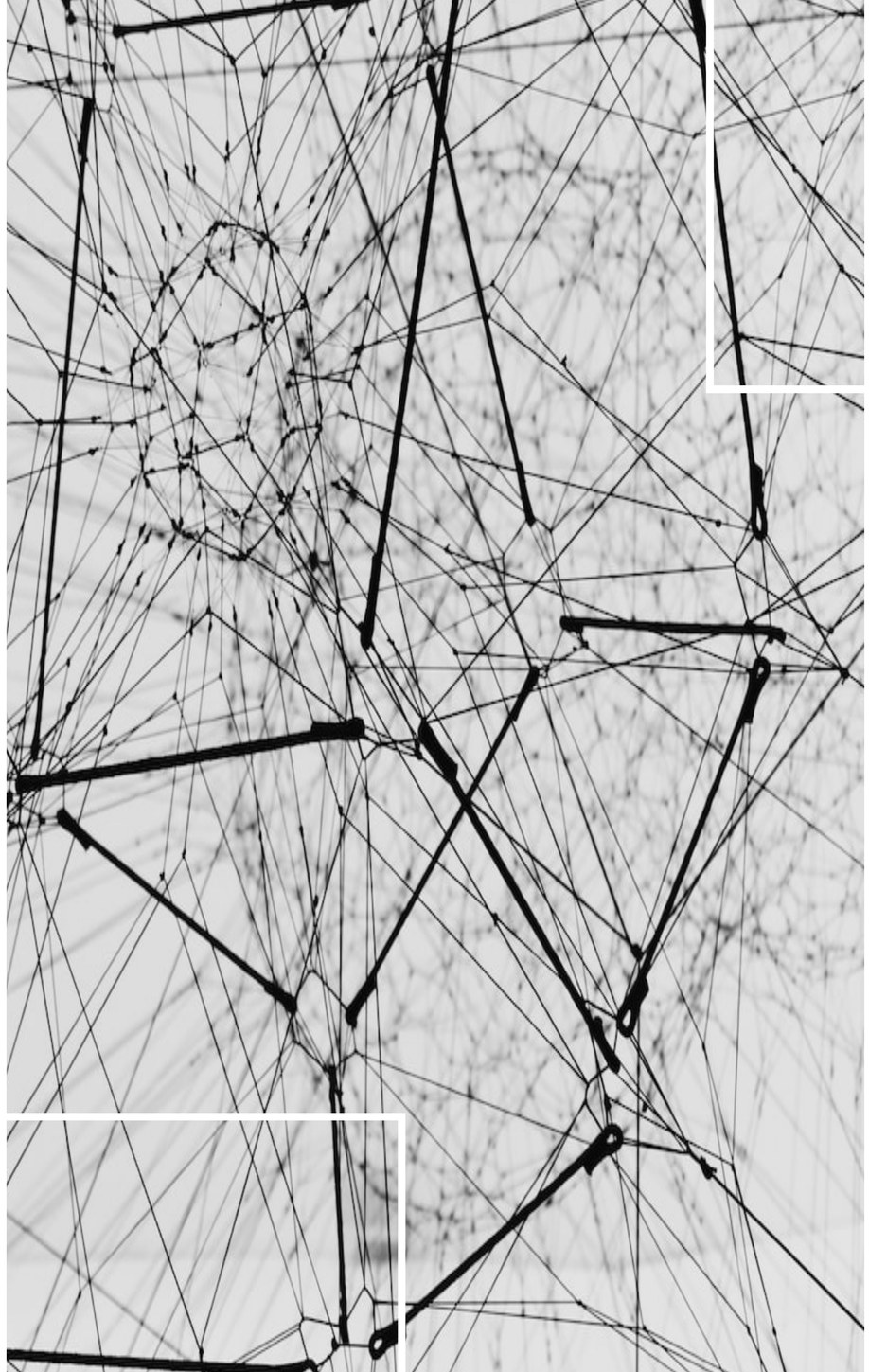
5. CONFIDENTIAL SMART CONTRACTS

Phala Network provides confidential smart contracts for secure enterprise solutions. These smart contracts are used to store private data safely and securely while enabling private, public and consortium blockchains to continue their activities without exposing confidential data to the public. Their flexible, configurable architecture allows developers to quickly and easily develop apps that meet their organization's security needs.



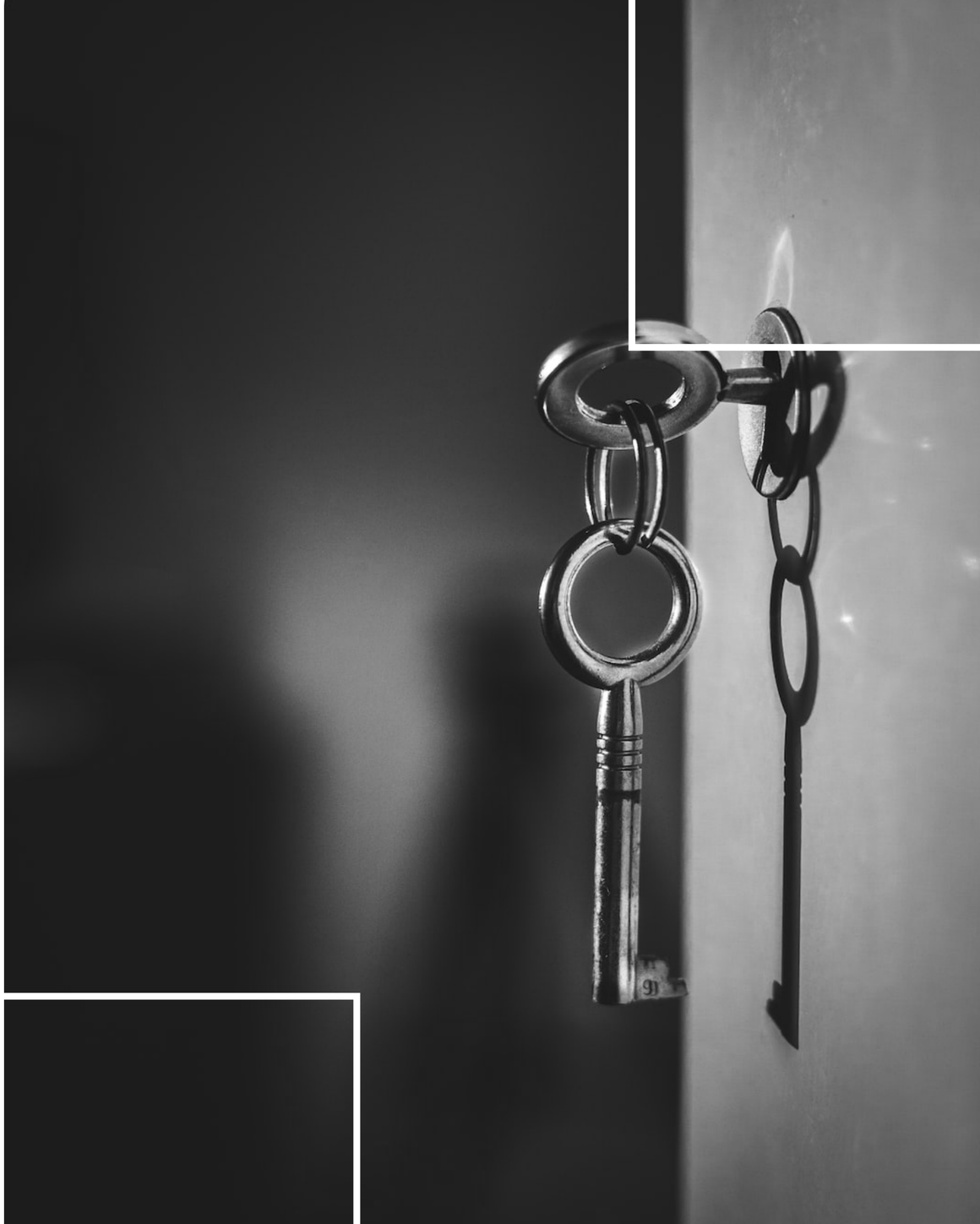
6. DECENTRALIZED CLOUD COMPUTING

Secure off-chain data storage and processing with end-to-end encryption of user data for added protection. Phala Network allows for distributed trustless execution of cloud contracts on a decentralized network with unparalleled scalability. This ensures maximum safety and privacy for enterprise solutions.



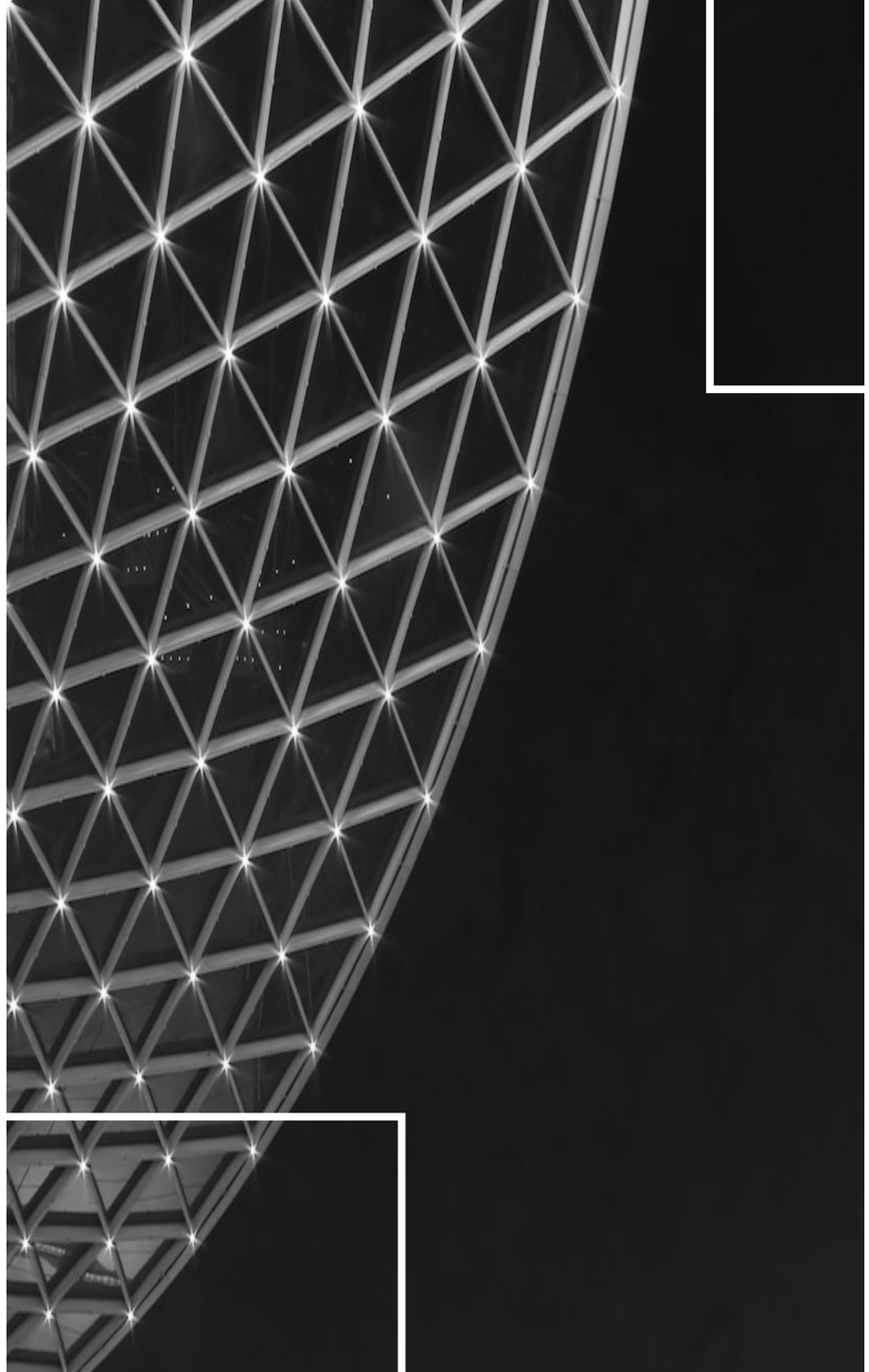
7. PHALA NETWORK CASE STUDIES

See the impact of Phala Network's blockchain privacy and security solutions on prominent enterprises through case studies. Get insight into the data encryption, secure off-chain data storage and processing, and distributed trustless execution of cloud contracts enabled by Phala Network.



8. INTEGRATION WITH EXISTING SYSTEMS

Securely incorporate existing IT resources, systems and administrations with Phala Network's distributed private blockchain, without overhauling existing systems. Leverage the transparent data workflow and data privacy safeguarding combined with blockchain to realise enterprise-level security solutions.



9. FUTURE DEVELOPMENTS

Never Stop Growing

Phala Network with scalable architecture and advanced technologies provides a secure and flexible platform for future development. With its decentralised network, adaptive privacy and proprietary consensus algorithm Phala Network is continuously evolving.

10. Q&A AND DISCUSSION

1.0 Q&A and discussion - Phala Network offers detailed answers to questions related to privacy, security, decentralised application and enterprise solution development. Further details on the features, techniques and solutions related to Phala Network accessible via discussion forums and Q&A sessions.