



Vidya Pratishthan's Kamalnayan Bajaj  
Institute of Engineering and Technology,  
Baramati

AICTE-ISTE Approved Refresher  
Program on  
**Cloud Computing and Security Challenges**



# AICTE-ISTE Approved Refresher Program on **Cloud Computing and Security Challenges** Program Overview and Impact Analysis

## Introduction:

**Title of Program:** Cloud Computing and Security Challenges

**Duration of program:** 10<sup>th</sup> Jan 2022 to 15<sup>th</sup> Jan 2022

Cloud Computing has empowered enterprises in terms of on-demand resource and service utilization on a pay-per-basis leveraging Virtualization mechanism. It has provided subtle advantages to Businesses today like lower initial IT investment costs, Agility to business, utility computing and seamless and unlimited access to services over the Internet. Physical Servers and other Storage Infrastructure on Cloud are shared among multiple tenants by virtue of Virtualization technology. This has posed a threat to Cloud storage from malicious entities and hence Security to Cloud has become a paramount issue and a great challenge in today 'era of Computing.

Cloud Security is a blend of security policies and mechanisms in order to protect the overlapping trust boundaries among the cloud consumers. Information Security and Network security issues are an integral and essential component of Cloud Security frameworks and research domain.

This program introduced the audience to the recent trends and research threads in the domain of Cloud Computing and also focused light on cloud security and challenges. This program helped foster research motivation in the field of Cloud Computing among the Teachers fraternity and research scholars.

## Invited Speakers for the Program:

1. Dr. Mahendra Pratap Singh (NIT Surathkal)
2. Dr. Bhupendra Singh (IIIT Pune)
3. Dr. Pramod Mane (IIIT Dharwad)
4. Dr. Modi Chirag Navinchandra (NIT Goa)
5. Dr. Shefali Sonawane (WCE, Sangli)
6. Dr. Jibi Abraham (COEP Pune)
7. Mr. Chandrakant Dhome (AWS, USA)

# Cloud Computing and Security Challenges

---

8. Ms. Krishnaveni Manchavajjhala (TCS, Hyderabad)
9. Dr. Rajani Sajjan (MIT ADT, Pune)
10. Mr. Harshal Tupsamudre (IBM Research Lab Pune)
11. Dr. Sunil B. Mane (COEP, Pune)
12. Dr. S.B. Deosarkar (DBATU, Lonere)
13. Dr. Aradhana Deshmukh (Marathwada Mitra Mandal's College of Engineering, Pune)
14. Dr. Vishkha Walke (VMMC, Solapur)
15. Dr. Sheetal A. Takale (VPKBIET, Baramati)
16. Mr. Nattu Nitve (VPKBIET, Baramati)
17. Prof. V.D. Vaidya (Executive Secretary, ISTE)
18. Dr. P.K. Desai (President, ISTE)
19. Col B. Venkat (Director FDP Cell, AICTE)

## **Speakers Invited from Institutes of National Repute**

- NIT Surathkal
- NIT Goa
- COEP Pune
- IIIT Pune
- IIIT Dharwad
- WCE, Sangli
- MIT ADT Pune
- MMCOE, Pune

## **Experts Invited from Industry for Cloud Security**

- AWS, USA
- Standard Chartered Bank Hong Kong
- Standard Chartered Bank Singapore
- TCS, Hyderabad
- IBM Research Lab Pune
- Barclays, Pune
- Qualys IT Security Solutions, Pune

# Cloud Computing and Security Challenges

---

## Topics Covered in the program

No.	Name of Speaker	Topics Covered
1	Ms. Krishnaveni M. TCS Hyderabad	Evolving Face of Cloud Security: Addressing Changes and Challenges with a Zero Trust Security Model
2	Dr. Jibi Abraham COEP, Pune	Cloud Computing Security in Perspective of System and Data
3	Dr. Rajani Sajjan MIT ADT, Pune	Security issues in Cloud Computing and AWS Cloud Security Semblance
4	Dr. Araddhana Deshmukh MMCOE, Pune	Role of Cloud in Artificial Intelligence
5	Dr. Mahendra Pratap Singh NIT Surathkal Karnataka	Role of Authorization in Cloud Computing Security
6	Dr. Bhupendra Singh IIIT Pune	Hashcat: Powerful Password Cracking Tool
7	Dr. Shefali Sonavane WCE, Sangli	Security Attacks and Analysis
8	Dr. S.B. Mane COPE Pune	Social Engineering and Cyber Security Research Trends
9	Dr. Modi Chirag Navinchandra NIT Goa	Security Concerns and Solutions at Different Components of Virtualization
10	Dr. Pramod Mane IIIT Dharwad	Game-Theoretic Models in the Social Cloud
11	Mr. Viren Chaudhari Qualys Pune	Introduction to Mitre ATT&CK Framework
12	Dr. Vishkaha Wlake VMCM, Solapur	Stress Management During Covid-19 Pandemic
13	Mr. Nitve Natu VPKBIET, Baramati	Art of Living for Stress Management
14	Dr. S.B. Deosarkar DBATU Lonere	National Education Policy - 2020
15	Mr. Chandrakant Dhome AWS, USA	AWS External Security Services

---

# Cloud Computing and Security Challenges

---

## Participants Response

Total Registrations for the program:	192
Confirmed Participants :	110
Participants Successfully Completed Program:	73
Participants Registered from Other states:	52
Male Participants Registered for Program:	77
Female Participants registered for Program:	115
ISTE Members Registered for Program:	112 out of 192
Participants Registered from VPKBIET, Baramati	05
Participants Registered from Industry:	51

## Participant Communication

Google Form for participant Registration: <https://forms.gle/dD2PfnsgV1bYuafE6>  
Google Form for Registration Confirmation: <https://forms.gle/rSiDAg7yWpLPKBSD7>  
WhatsApp Group Invitation Link: <https://chat.whatsapp.com/JCAI3BsiktCHXPA0oIfyaE>

## Overview of Activities Carried out for Organization of Program

- Researchers from Institutes of National Repute and Industry experts in the field of Cloud Computing, Cloud Security, Information and network Security were identified and invitation was sent to them.
- After Finalization of speakers of the program, communication was done through email with the Faculty of Engineering Institutes in India.
- We received very good response of participant registration within a very short time span of 12 days.
- **As the Maximum Limit to participant count is 100, we applied Criteria** for selection of participants from the list of 192 participants. Criteria for selection was:
  1. ISTE Membership
  2. Date of Registration (For Non- ISTE members)
- Final Selected Participants were 100 + 5 from host institute .
- To avoid inactive participants out of selected participants, a Google Form was designed to collect final confirmation of the selected participants for attending the program. Out of selected 100 participants, 70 participants confirmed their willingness to attend the program. Rest 30 seats were selected by collecting the willingness of not selected participants for attending the program.
- **Program was conducted through Zoom Meeting** which is having a limit of 500 participants. Zoom meeting link was also shared with all the participants who had registered for the program. Hence, no participant was denied to attend the sessions of their interest.

## Cloud Computing and Security Challenges

- Program was also made available publicly through YouTube Live streaming.
  - Day 1: 10<sup>th</sup> Jan 2022 [https://www.youtube.com/watch?v=4C\\_Nys\\_66c](https://www.youtube.com/watch?v=4C_Nys_66c)
  - Day 2: 11<sup>th</sup> Jan 2022 <https://www.youtube.com/watch?v=32LI0H092MA>
  - Day 3: 12<sup>th</sup> Jan 2022 <https://www.youtube.com/watch?v=N5KZXte76AQ>
  - Day 4: 13<sup>th</sup> Jan 2022 <https://www.youtube.com/watch?v=mORBau9sCH4>
  - Day 5: 14<sup>th</sup> Jan 2022 [https://www.youtube.com/watch?v=J7Er1q\\_3-IQ](https://www.youtube.com/watch?v=J7Er1q_3-IQ)
  - Day 6: 15<sup>th</sup> Jan 2022 <https://www.youtube.com/watch?v=znRR-xh2VSE>
- Session wise attendance and feedback for every Speaker was collected through Google Form.
- WhatsApp and Zoom Chat was effectively utilized for communication with participants and timely response was given to the queries of the participants.
- As per guidelines provided by AICTE-ISTE, Short Test was conducted at the end of the program on every day.
  - Test 1 : <https://forms.gle/Tzp7rKW2T2xoQTUV8>
  - Test 2 : <https://forms.gle/tXAjxaTvvyL4Yo4S9>
  - Test 3 : <https://forms.gle/K9ij2Z6v3iJGk25h8>
  - Test 4: <https://forms.gle/2fKt6628PGtwdUjL7>
  - Test 5: <https://forms.gle/FcLPn5ac5c4RNUuc9>

### Session Plan for Six Days:

Day (Date) / Time	9.30-11.00 AM	Break	11.30 AM-01.00 PM	Break	2.00- 3.30 PM	3.30-4.00
10/1/2022 (Monday)	<b>Inauguration &amp; Keynote Speech by:</b> Ms. Krishnaveni M. TCS, Hyderabad		Ms. Krishnaveni M. TCS, Hyderabad		Dr. Jibi Abraham COEP, Pune	Test
11/1/2022 (Tuesday)	Dr. Rajani Sajjan, MIT ADT Pune		Art of Living Mr. Natu Nitve		Dr. Araddhana Deshmukh, MMCOE, Pune	
12/1/2022 (Wednesday)	Dr. Mahendra Pratap Singh NIT Surathkal		Dr. Bhupendra Singh IIIT, Pune		Dr. Shefali Sonavane WCE, Sangli	
13/1/2022 (Thursday)	Mr. Chandrakant Dhome AWS, USA		Dr. Vishakha Walke VMMC, Solapur		Dr. S. B. Mane, COEP Pune	
14/1/2022 (Friday)	Dr. Modi Chirag Navinchandra NIT Goa		Dr. S.B. Deosarkar DBATU, Lonere		Dr. Pramod Mane IIIT, Dharwad	
15/1/2022 (Saturday)	Viren Choudhari Qualys, Pune		Final Assessment Test And Feedback Session		<b>Valedictory</b>	



# Cloud Computing and Security Challenges

## Overview of Participant Feedback

**Google Form to collect Overall Feedback from Participants:** <https://forms.gle/qBLEqFcS28Ki7NG37>

- Google form was designed to evaluate the conduction of the program by the participants of the program. Evaluation was carried consider the following parameters:
  1. Quality of content of the course
  2. Appropriateness of content of the course
  3. Content delivery by the Speaker/Resource persons
  4. Presentation skill of resource persons
  5. Timely conduction of sessions
  6. Overall Quality of sessions
  7. Support system (internet connectivity, audio, video quality etc.)
  8. Overall impression about the program.
  9. Usefulness of program in teaching
  10. Coordination of Course
  11. Participants Expectation Satisfaction
- Scope of improvement was recorded through the Feedback Form
- A List of good things observed in this program were also recorded

Outcome from the Feedback given by participant for the six days AICTE-ISTE Refresher program on “Cloud Computing and Security Challenges” can be listed as:

- Participants found that speakers of the program were knowledgeable and experts in the field of Cloud Computing Security.
- Timely conduction of sessions and punctuality was appreciated by participants.
- Participant found that every aspect of cloud computing was addressed in the workshop.
- Participants also found that program was very well coordinated and well executed.
- Participants also noted that Cooperation and attitude of organizer was good.

## Difficulties Faced and Learning Experience

	Difficulty	Lesson Learn
1	Due to Covid-19 Third wave, few Speakers of the program were ill, however, in such health situations also, they conducted the sessions	Commitment for the work
2	Due to Covid-19 Third wave, one Speaker was unable to conduct the session, hence, he gave a replacement speaker who was an excellent addition to the program due to his expertise in the subject.	Responsible behavior of the speaker
3	Some of the participants were Covid-19 positive, however, in such conditions also they attended the program	Participants strong will to attend the program
4	Network Connectivity at the speaker end was a problem for the Speaker from VM Medical College, Solapur. However, she was ready with alternative options.	Adverse situations can always be handled with proper planning and willingness.

# Cloud Computing and Security Challenges

---

## Impact and Outcome of the Program

- ▶ Researchers in the field of Cloud Computing and Cloud Security explored the relevant literature survey.
- ▶ Research problems in the area of Cloud Security were discussed in detail.
- ▶ Hands on Sessions were conducted by Speakers to demonstrate:
  - ▶ Hashcat
  - ▶ AWS Cloud Security
  - ▶ MITRE ATT&CK Framework
- ▶ State-of-the-art technology in the field of Cloud Computing and Security was discussed:
  - ▶ Zero Trust Model
  - ▶ Microsoft Azure
  - ▶ AWS Cloud
  - ▶ Social Cloud
  - ▶ Authorization for Cloud Security
  - ▶ Cloud Security at System and Data level
- ▶ A Session on NEP-2020 by the expert was conducted to give awareness about Education in India
  - ▶ India a global knowledge superpower.
  - ▶ No child will be left behind
  - ▶ 5+3+3+4 curricular structure
  - ▶ Five pillars: Affordability, Accessibility, Quality, Equity, and Accountability
- ▶ Session on Stress Management during Covid-19
  - ▶ Benefits of Pranayam for stress management
  - ▶ Benefits of Yoga for healthy life
  - ▶ How to deal with Covid-19 and Third wave
  - ▶ Facts about Covid-19 Third wave
- ▶ Participants got an opportunity to interact with the experts in the field of Cloud Computing and Security

## Acknowledgements

We are thankful to AICTE, ISTE for providing the opportunity for conducting the Refresher program for Faculty of Technical Institutes by sanctioning the Grant. Also we are thankful to AICTE and ISTE for providing complete support during the conduction of the program. We extend our special thanks to Col B. Venkat, Director FDP Cell, AICTE, Dr. P.K. Desai, President, ISTE, and Prof. V.D. Vaidya, Executive Secretary, ISTE for motivation, support and guidance since the grant of the proposal to conduct of the six days program. We are thankful to management of Vidya Pratishthan for providing all support and encouragement. We are thankful to speakers of the program more ecstatic and remarkable. We are also thankful to the learned participants for their active participation.

Dr. S.A. Takale  
Coordinator, VPKBIET, Baramati

Dr.R.S. Bichkar  
Principal, VPKBIET, Baramati



# AICTE-ISTE Approved Refresher Program on Cloud Computing and Security Challenges Session Wise Report

## Introduction:

<b>Title of Program:</b>	<b>Cloud Computing and Security Challenges</b>
<b>Duration of program:</b>	10 <sup>th</sup> Jan 2022 to 15 <sup>th</sup> Jan 2022
<b>Number of Sessions Conducted:</b>	19
<b>Number of Confirmed Participants</b>	100
<b>Number of Participants who completed the program successfully</b>	73

**Session No:** 1,2

**Date :** 10<sup>th</sup> Jan 2022 Time 9.30 AM to 10.30 AM

**Title of Session :** Inauguration of AICTE-ISTE Approved Refresher Program

### Details of Speakers:

1. Dr. Prof. V. D. Vaidya (Executive Secretary, ISTE)
2. Col. B. Venkat (Director FDP Cell, AICTE)
3. Dr. R.S. Bichkar (Principal VPKBIET, Baramati)
4. Ms. Krishnaveni Manchavajjhala (TCS, Hyderabad)

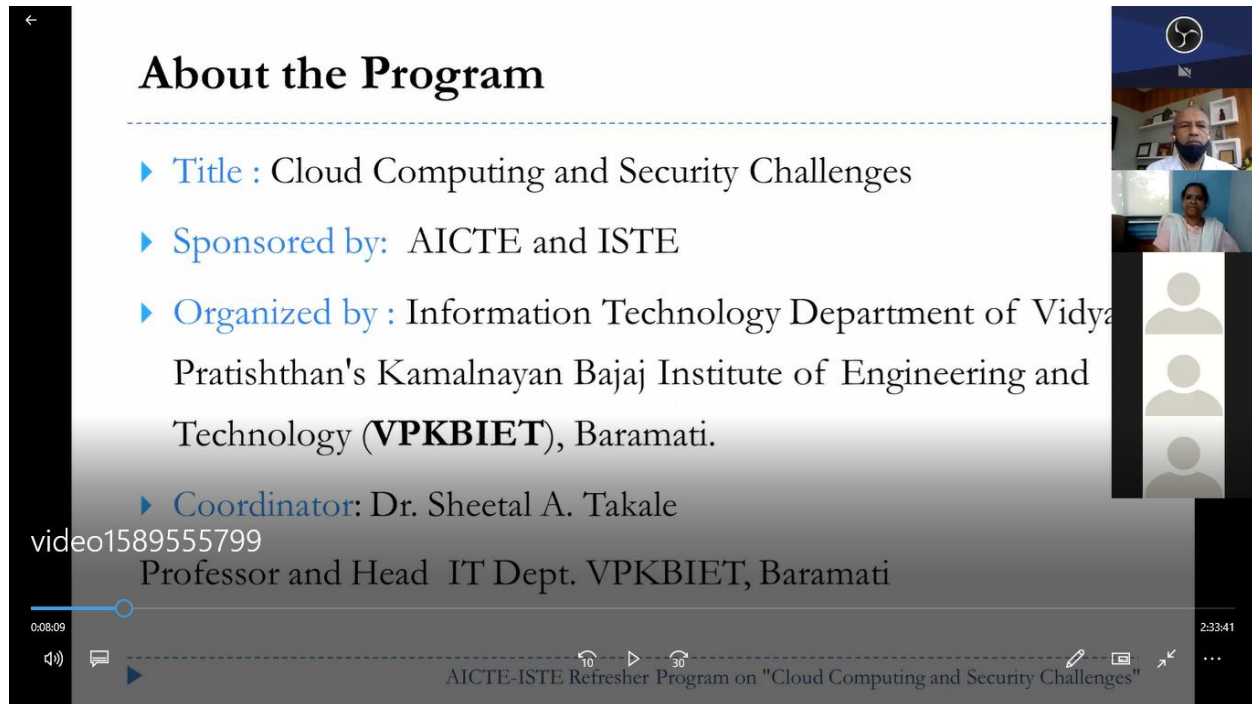
### The Inaugural Program

The Inaugural program started at 9.30 AM on 10<sup>th</sup> Jan 2022. It was chaired by Col. B. Venkat, Director FDP Cell, AICTE and Prof. V.D. Vaidya, Executive Secretary, ISTE. Dr. R.S. Bichkar Principal, VPKBIET, Baramati addressed the participants and also gave brief idea about ISTE activities carried out in VPKBIET, Baramati. Dr. Sheetal A. Takale, Coordinator of the program presented the brief overview of the program and aim of the refresher program.

**Inauguration program was followed by the Keynote Speech by Ms. Krishnaveni Manchavajjhala (TCS, Hyderabad)**

Ms. Krishnaveni M. who is Azure Security Consultant at TCS, Hyderabad was invited as Keynote Speaker for the program. She introduced the need of Cloud Computing in today's era and the Evolving Face of Cloud Security. She also discussed the Covid 19 Impacts on Digital Risk management. She discussed about Accelerated Digitization, Spike in Cyber Threat Activity, Evolving Government Responses and Mandates, Supply chain Disruption and Societal Influence which has resulted in the need of Cloud Computing and Cloud Security.

# Cloud Computing and Security Challenges



The screenshot shows a video player interface. The main content is a presentation slide titled "About the Program". The slide lists the following details:

- ▶ **Title :** Cloud Computing and Security Challenges
- ▶ **Sponsored by:** AICTE and ISTE
- ▶ **Organized by :** Information Technology Department of Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology (**VPKBIET**), Baramati.
- ▶ **Coordinator:** Dr. Sheetal A. Takale  
Professor and Head IT Dept. VPKBIET, Baramati

On the right side of the video player, there is a vertical strip showing a grid of video thumbnails. The top thumbnail shows a man speaking, and the others are generic person icons. The video player controls at the bottom show a progress bar at 0:08:09, a volume icon, a play/pause button, and a full screen button. The text "AICTE-ISTE Refresher Program on 'Cloud Computing and Security Challenges'" is visible at the bottom of the video frame.

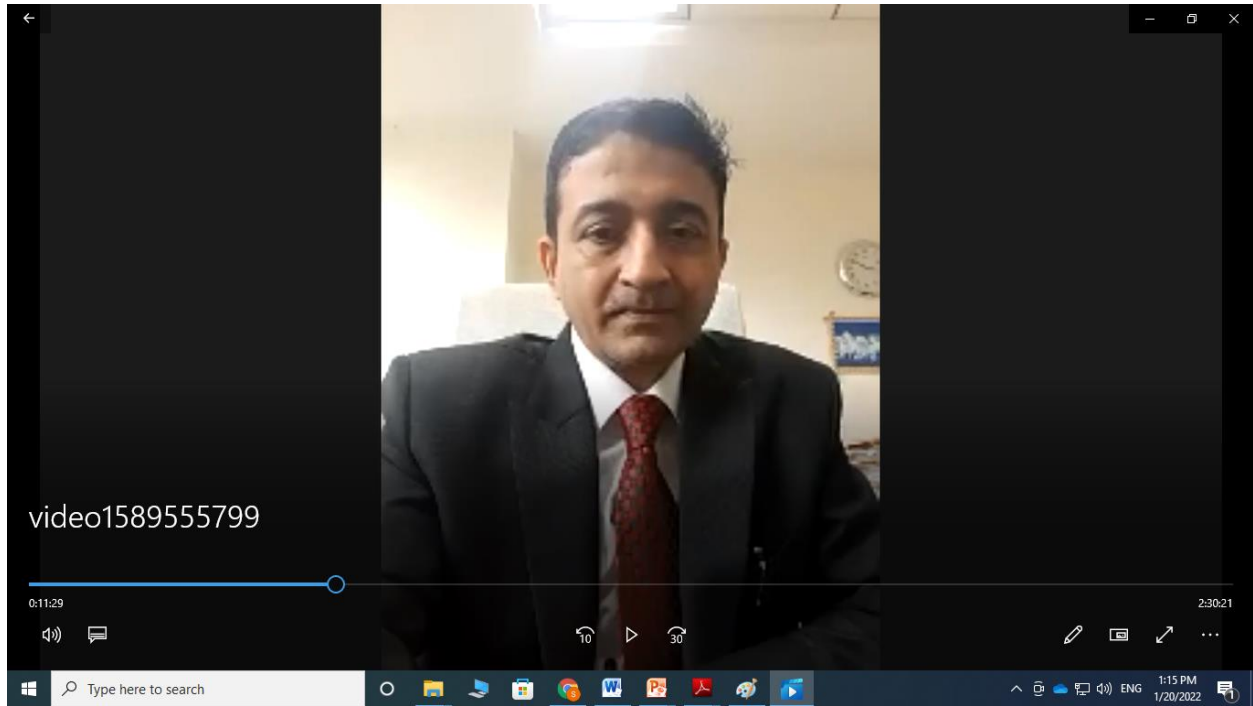
**Coordinator Presenting Overview of Program**



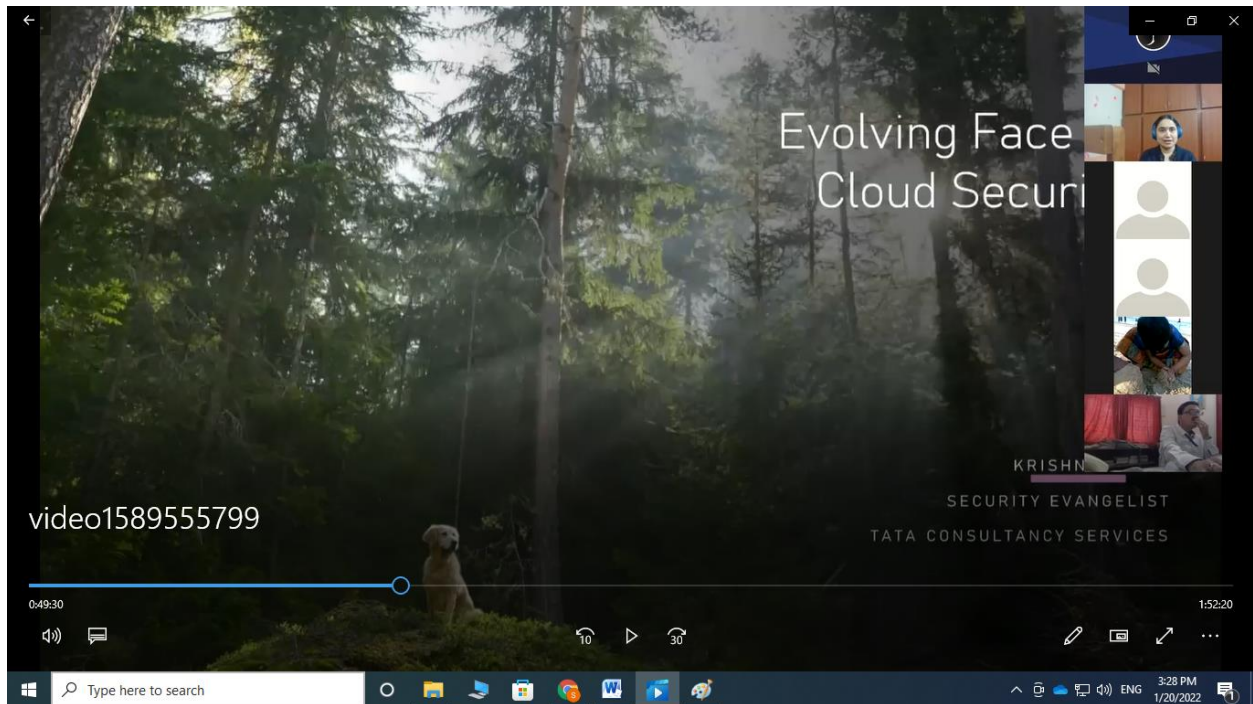
The screenshot shows a video player interface displaying a live video of Prof. Vijay Vidya. He is a middle-aged man with glasses, wearing a dark vest over a light-colored shirt. He is speaking and gesturing with his hands. The background shows a room with a white shelf and a framed picture on the wall. The video player controls at the bottom show a progress bar at 0:11:29, a volume icon, a play/pause button, and a full screen button. The Windows taskbar is visible at the bottom of the screen, showing the search bar and various application icons. The system clock in the bottom right corner indicates 1:15 PM on 1/20/2022.

**Prof. Vijay Vidya Addressing the Participants**

## Cloud Computing and Security Challenges



**Col. B. Venkat Addressing the Participants**



**Keynote Speech by Ms. Krishnaveni M.**

# Cloud Computing and Security Challenges

**Session No: 3**

**Date : 10<sup>th</sup> Jan 2022 Time 11.00 AM to 1.00 PM**

**Title of Session : Evolving Face of Cloud Security: Addressing Changes and Challenges with a Zero Trust Security Model**

**Details of Speakers:**

**Name:** Ms. Krishnaveni Manchavajjhala

**Qualification:** M.Tech.(Software Engineering)

**Experience:** 18 Years 11 Months in TCS Ltd.

**Current Position:** Azure Security consultant at TCS Hyderabad, India



**Evolving Face of Cloud Security: Addressing Changes and Challenges with a Zero Trust Security Model:**

Ms. Krishnaveni M. discussed about the Zero Trust Security Model during the second session. She elaborated about the concept of Zero Trust. Zero trust is to Verify Explicitly, Use Least Privileges and Assume Breaches. She elaborated about the Foundational Pillars of Zero trust Security : Identity, End Point, Data, Apps, Infrastructure, and Network.

**Security Commandments for the Future of Enterprise**

**01 | Global Connectivity**

- GDPR and Industry Standards
- Governance and management
- Continuous compliance
- Security Orchestration, Automation and Response (SOAR)

**02 | Increased Digital Footprint**

- Information Protection
- Continuous threat detection
- Data Encryption
- Secret Management
- Privileged Identity Management

**03 | Device as Workplace**

- Endpoint security
- Incident remediation for user and device risks
- JIT access

**04 | Higher Employee Engagement**

- DDoS Protection
- Access management
- Sensitivity, Classification and Labeling
- Data Loss Prevention
- Message Encryption
- Productivity Applications Security

**05 | AI and Automation**

- Automated Threat Identification
- Intelligent Secure Operations
- Alertable recommendations
- Trained Classifiers
- Automated Remediation

**Modern Enterprise Tenets**

01 Global Connectivity

02 Increased Digital Footprint

03 Device as Workplace

04 Higher Employee Engagement

05 AI and Automation

video1589555799

0:11:29 2:30:21

Type here to search

OneDrive - vpkbiet.org Up to date

**Session by Ms. Krishnaveni M.**



# Cloud Computing and Security Challenges

Session No: 4

Date : 10<sup>th</sup> Jan 2022 Time 2.00 PM to 3.30 PM

Title of Session : Cloud Computing Security in Perspective of System and Data

Details of Speakers:

Name: Dr. Jibi Abraham

Qualification: Ph.D.(Computer Engineering)

Experience: 25 years of Teaching Experience

Current Position: **Professor, CSE Dept. COEP Pune**



## Cloud Computing Security in Perspective of System and Data:

Dr. Jibi Abraham, who is Professor in Computer Engineering Department of COEP, Pune. She has guided Ph.D. research in the field of Cloud Security. She delivered a session on “Cloud Computing Security in Perspective of System and Data”. The session objectives were:

- To present cloud characteristics that create interesting security issues
- Identify Security Issues in this framework
- Approaches for addressing the issues

Session started with the brief overview of fundamentals of Cloud Computing by discussing various types of Cloud models. Further it was extended to problems associated with Cloud, Cloud Challenges and Security Issues at System level and Data level were elaborated during her talk.

**Impact of Cloud Computing on the Governance Structure of IT Organizations**

On Premise	On Premise (hosted)	IaaS	PaaS	SaaS
App	App	App	App	App
VM	VM	VM	Services	Services
Server	Server	Server	Server	Server
Storage	Storage	Storage	Storage	Storage
Network	Network	Network	Network	Network
Organization has control		Organization shares control with vendor	Vendor has control	

VPKBIET & AICTE-ISTE INDUCTION\_ REFRESHER Program on “Cloud Computing and Security Challenges”

4:53:36

COEP

College of Engineering Pune (COEP)  
Forerunners in Technical Education

FACULTY FIRST. STUDENT ALWAYS !

zoom 2:02:57

Session By Dr. Jibi Abraham

# Cloud Computing and Security Challenges

---

**Session No: 5**

**Date : 11<sup>th</sup> Jan 2022 Time 9.30 AM to 11.00 AM**

**Title of Session : Security issues in Cloud Computing and AWS Cloud Security Semblance**

**Details of Speakers:**

Name: **Dr. Rajani Sajjan**

Qualification: Ph.D.(Computer Engineering)

Experience: 23 years of Teaching Experience

Current Position: **Associate Professor, MIT ADT Pune**



## **Security issues in Cloud Computing and AWS Cloud Security Semblance:**

Dr. Rajani Sajjan who is Associate Professor in Computer Engineering Department of MIT ADT, Pune is also a researcher in the field of Cloud of Data Security. She has seven Copyrights registered in her name and has published 3 patents and 1 patent is granted to her. She is AWS Certified Cloud Practitioner. She has also achieved: AWS Graduate badge, AWS Graduate Solution Architect badge.

During her session she discussed about:

- Impact of Digitization
- Cloud Security issues and challenges
- Current Scenario of Cloud Security paradigm
- AWS Cloud Security Architecture
- AWS security services
- Opportunities

During her session she conducted two Online Quizzes. All the participants took great interest gave good response to this activity. This was liked by all the participants.

She also discussed about following Cloud Research Areas:

- Cloud Ubiquity
- Regional cloud ecosystems - GAIA-X
- Sustainability and carbon-intelligent cloud
- Cloud infrastructure and platform service (CIPS)

**Session No: 6**

**Date : 11<sup>th</sup> Jan 2022 Time 11.30 AM to 1.00 PM**

**Title of Session : Art of Living**

**Details of Speakers:**

Name: **Mr. Natu Nitve**

Current Position: **Faculty VPKBIET, Baramati**



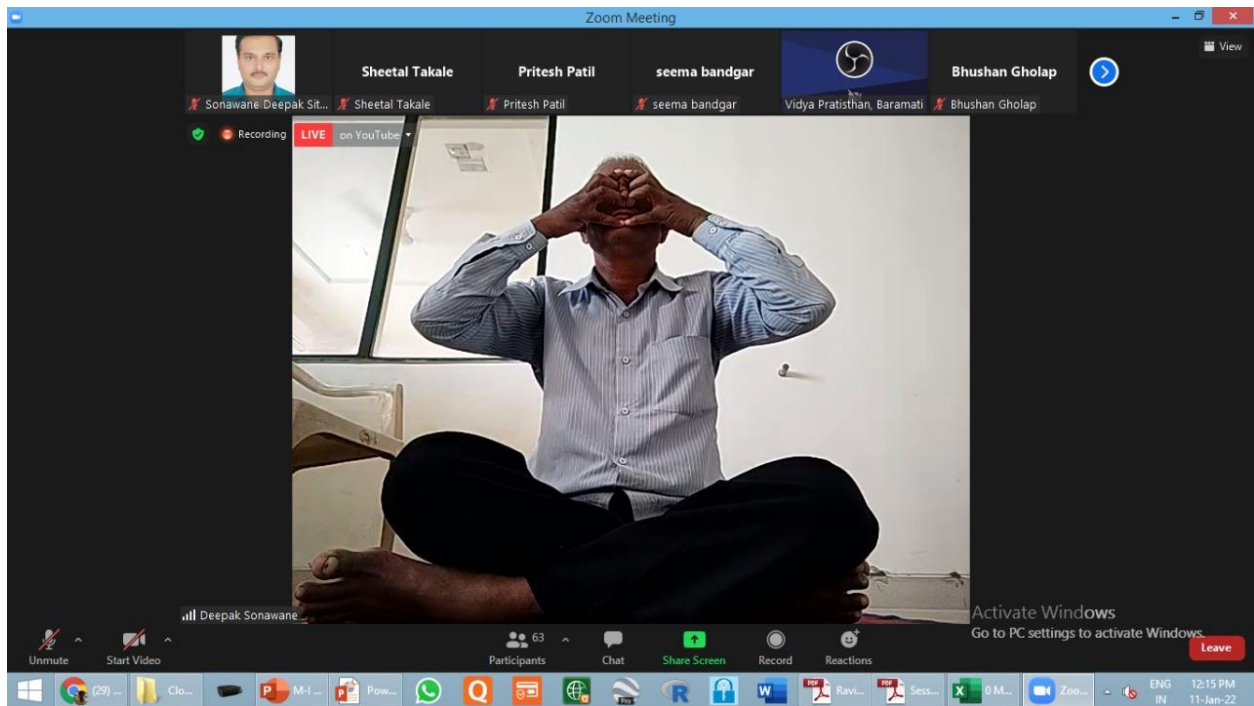
## **Art of Living:**

Mr. Natu Nitve demonstrated live various Pranayamas and Yogasanas.

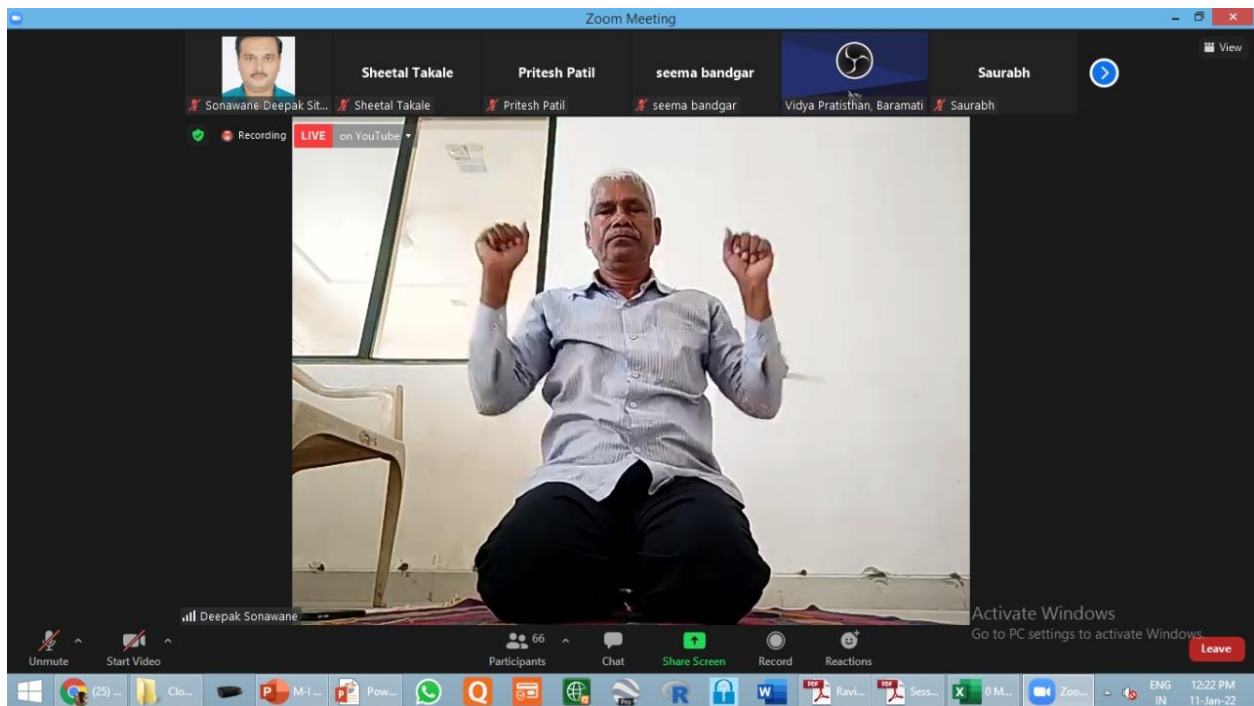


# Cloud Computing and Security Challenges

---



**Mr. Natu Demonstrating "Bhramari Pranayam"**



**Mr. Natu Demonstrating "Yogasanas"**

# Cloud Computing and Security Challenges

---

**Session No: 7**

**Date : 11<sup>th</sup> Jan 2022 Time 2.00 PM to 3.30 PM**

**Title of Session : Role of Cloud in Artificial Intelligence**

**Details of Speakers:**

Name: Dr. Aaraddhana Deshmukh  
Qualification: Ph.D.(Computer Engineering)  
Experience: 26 years of Teaching Experience  
Current Position: **Associate Professor, AIDS Dept.  
MMCOE Pune**



## **Role of Cloud in Artificial Intelligence:**

Dr. Aaraddhana Deshmukh has published 142 papers in reputed Journals, Conferences. She is also an author of Book on Cloud Computing. In her talk she discussed that the machine learning concept has the ability to learn from data. By integrating this technology-based concept with the cloud computing approach, revolutionary changes can take place in the technological infrastructure. The amalgamation of machine learning with cloud computing can give rise to an “Intelligent Cloud.” Cloud which basically involves networking, storage, and computing. By infusing machine learning technology with the cloud, the capabilities cloud could become stronger. For instance, the intelligent cloud could learn from the humongous volume of data that is available on the cloud. Thus, it could help to make accurate predictions. In addition to this, it would also be able to carry out the proper analysis of various kinds of situations. The machine learning application in cloud computing has the potential to bring about revolutionary changes in the cloud landscape.

**Session No: 8**

**Date : 12<sup>th</sup> Jan 2022 Time 9.30 AM to 11.00 AM**

**Title of Session : Role of Authorization in Cloud Computing Security**

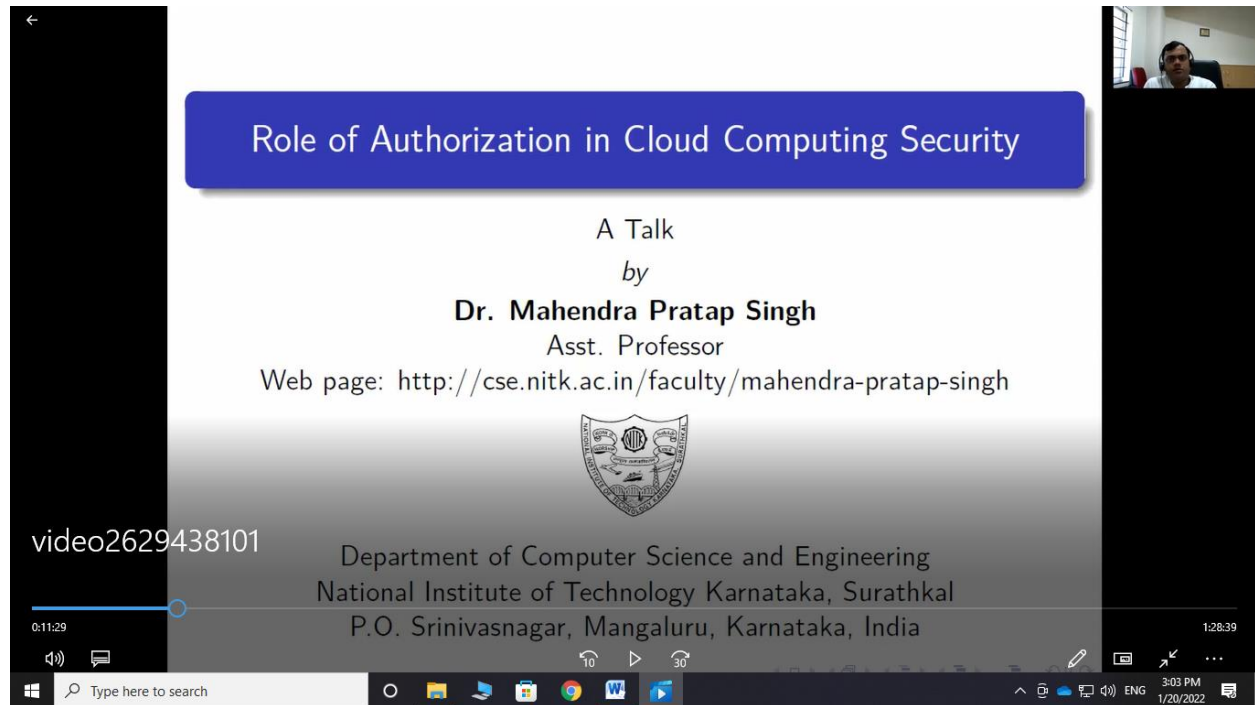
**Details of Speakers:**

Name: **Dr. Mahendra Pratap Singh**  
Qualification: Ph.D.(Computer Engineering) IIT Kharagpur  
Experience: 13 years of Teaching Experience  
Current Position: **Asst. Professor, CSE Dept.  
National Institute of Technology  
Karnataka Surathkal.**



## **Role of Authorization in Cloud Computing Security**

**Dr. Mahendra Pratap Singh** who is Asst. Professor in Computer Engineering Department of NITK Surathkal. During his session he introduced various research problems in the field of Cloud Computing and Security. He explored the relevant literature survey for the proposed research problems. He discussed about specification and enforcement of heterogeneous access control policies. He explored RBAC – Role Based Access Control and ABAC – Attribute Based Access Control. Crucial aspect of research in Cloud Security was discussed.



Role of Authorization in Cloud Computing Security

A Talk  
by  
**Dr. Mahendra Pratap Singh**  
Asst. Professor  
Web page: <http://cse.nitk.ac.in/faculty/mahendra-pratap-singh>

video2629438101

Department of Computer Science and Engineering  
National Institute of Technology Karnataka, Surathkal  
P.O. Srinivasnagar, Mangaluru, Karnataka, India

0:11:29

Type here to search

3:03 PM 1/20/2022

## Session by Dr. Mahendra Pratap Singh

**Session No: 9**

**Date :** 12<sup>th</sup> Jan 2022 Time 11.30 AM to 1.00 PM

**Title of Session : Hashcat: Powerful Password Cracking Tool.**

**Details of Speakers:**

Name: **Dr. Bhupendra Singh**

Qualification: Ph.D.(Computer Engineering) Defence Institute of Advanced Technology (DIAT) Pune.

Research Interest: Digital Forensics and Anti-forensics, Vulnerability Analysis and Penetration Testing  
Social Network Analysis, NLP, ML

Current Position: **Assistant Professor, Dept. of CSE  
Indian Institute of Information Technology (IIIT) Pune**



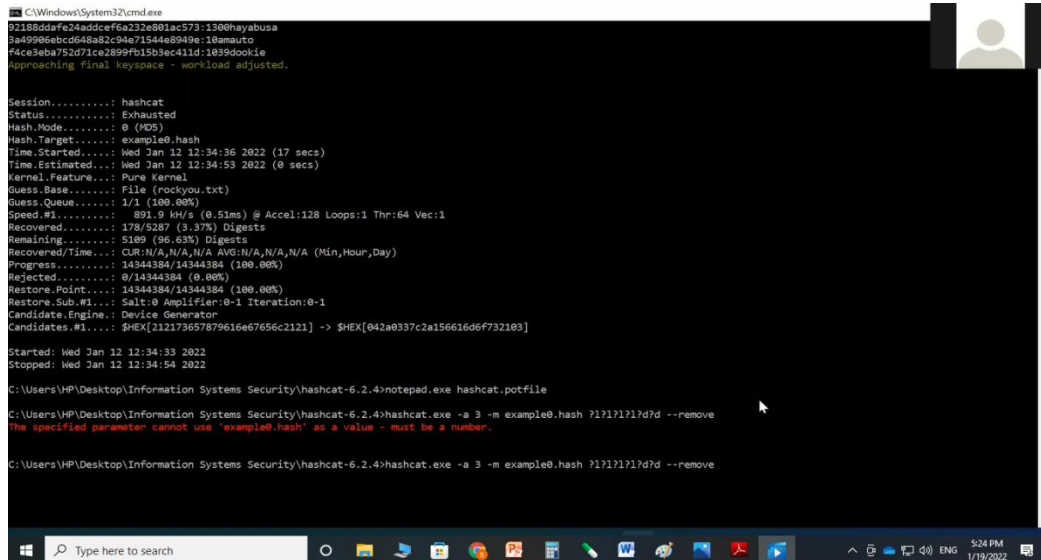
**Hashcat: Powerful Password Cracking Tool.**

**Dr. Bhupendra Singh** who is Asst. Professor in Computer Engineering Department of IIIT, Pune. During his session, he addressed various Security aspects for Cloud Computing. He discussed about:

- Windows Forensics
- Password Cracking Methods

# Cloud Computing and Security Challenges

- Password Cracking Tools
- JtR and Hashcat
- Windows password Cracking Tools
- Hands on for Hashcat



```
C:\Windows\System32\cmd.exe
02188ddefe24addcf6a232e081ac573:1300hayabusa
8a4990e6ebcd648a82c94e71544e0949e:10amauto
f4ce3eba75d71ce2899fb15b3ec411d:1039dookie
Approaching final keyspace - workload adjusted.

Session.....: hashcat
Status.....: Exhausted
Hash.Mode.....: 0 (VPS)
Hash.Target.....: example0.hash
Time.Started....: Wed Jan 12 12:34:36 2022 (17 secs)
Time.Estimated...: Wed Jan 12 12:34:53 2022 (0 secs)
Kernel.Feature...: Pure Kernel
Guess.Base.....: File (rockyou.txt)
Guess.Queue.....: 1/1 (100.00%)
Speed.#1.....: 891.9 kH/s (0.51ms) @ Accel:128 Loops:1 Thr:64 Vec:1
Recovered.....: 178/5287 (3.37%) Digests
Remaining.....: 5109 (96.63%) Digests
Recovered/Time...: CUR:N/A,N/A,N/A AVG:N/A,N/A,N/A (Min,Hour,Day)
Progress.....: 14344384/14344384 (100.00%)
Rejected.....: 0/14344384 (0.00%)
Restore.Point....: 14344384/14344384 (100.00%)
Restore.Sub.#1...: Salt:0 Amplifier:0-1 Iteration:0-1
Candidate.Engine..: Device Generator
Candidates.#1....: $HEX[212173657879616e67656c2121] -> $HEX[042a0337c2a156616d6f732103]

Started: Wed Jan 12 12:34:33 2022
Stopped: Wed Jan 12 12:34:54 2022

C:\Users\HP\Desktop\Information Systems Security\hashcat-6.2.4\notepad.exe hashcat.potfile
C:\Users\HP\Desktop\Information Systems Security\hashcat-6.2.4>hashcat.exe -a 3 -m example0.hash ?1?1?1?1?d?d --remove
The specified parameter cannot use 'example0.hash' as a value - must be a number.

C:\Users\HP\Desktop\Information Systems Security\hashcat-6.2.4>hashcat.exe -a 3 -m example0.hash ?1?1?1?1?d?d --remove
```

Hashcat hands on Session

Session No: 10

Date : 12<sup>th</sup> Jan 2022 Time 2.00 PM to 3.30 PM

Title of Session : Security Attacks and Analysis

Details of Speakers:

Name: Dr. Shefali Sonavane  
Qualification: Ph.D.(Computer Engineering)  
Experience: 27 years of Teaching Experience  
Current Position: Associate Professor, IT Dept. WCE,  
Sangli



## Security Attacks and Analysis:

**Dr. Shefali Sonavane** who is Associate Professor in IT dept. at WCE, Sangli, has expertise in Network and Information Security. She has guided Ph.D. students in the area of Security. She also has filled patents in her name. She has publications in journals like IEEE, Springer, Elsevier, Science Direct, IET with Scopus and SCI indexed. During her session following issues were addressed:

- Major categories of attacks on information security,
- Specific reasons for attacks
- Attack analysis towards precautionary measures during information handling over networks and clouds
- Steganographic provisions against digital fraud forensic investigations.

# Cloud Computing and Security Challenges

**Session No: 11**

**Date : 13<sup>th</sup> Jan 2022 Time 9.30 AM to 11.00 AM**

**Title of Session : AWS External Security Services**

**Details of Speakers:**

Name: Mr. Chandrakant Dhome

Qualification: B.E.(Computer Engineering)

Experience: 17+ years of experience in Software design and Development

Current Position: **Software Development Engineer at Amazon Web Services (AWS),**



## **AWS External Security Services:**

Mr. Chandrakant Dhome who is an alumni of VPKBIET, Baramati has 17 years' experience in Software design and Development. He worked with HSBC Software Development from 2006-2015 as part of Identity and Access Management team, working on HSBC personal banking authentication & authorization layer. Currently he is working with the AWS GuardDuty team. During his session he explored the need of Cloud in today's scenario. He discussed the Shared Responsibility Model for AWS. Further he explored about AWS Security Offerings and ESS Security Services.

Further he discussed about:

- Amazon GuardDuty
- Amazon Macie
- Amazon Inspector
- Amazon Security HUB
- Amazon Detective

The screenshot shows the AWS GuardDuty console interface. The left sidebar contains navigation options like Findings, Usage, Settings, Lists, S3 Protection, and Accounts. The main area displays a list of findings under the 'Findings' tab. The findings table has columns for Finding type, Resource, and Count. One finding is highlighted: 'Policy:S3/BucketBlockPublicAccess' with a count of 11. On the right, a detailed view of this finding is shown, indicating a low severity issue related to S3 bucket public access. The console also shows an 'Overview' section with details like Severity (LOW), Region (us-west-2), Count (4488), Account ID (697375792836), and Resource ID (guardduty-example-finan).



# Cloud Computing and Security Challenges

---

## GuardDuty Demo Session by Mr. Dhome



Session by Mr. Dhome Chandrakant

**Session No: 12**

**Date :** 13<sup>th</sup> Jan 2022 Time 11.30 AM to 1.00 AM

**Title of Session : Stress Management During Covid-19 Pandemic**

**Details of Speakers:**

Name: Dr. Vishkha Walke

Qualification: MBBS, MD(ANAESTHESIOLOGY)

Current Position: Senior Resident in VMMC , Solapur



### **Security Attacks and Analysis:**

Dr, Vishkha Walke who has completed MD in ANAESTHESIOLOGY from Government Medical College, Aurangabad. Presently she is working as Senior Resident in VMMC , Solapur. She has worked in Covid Wards of Government Medical College, Aurangabad during Covid-19 second wave.

During her session she discussed about the need of stress management during Covid-19 pandemic. How Covid-19 has affected different age groups and what are the reasons of stress. How stress affects health and how to deal with it. She also gave information about the precautions to be taken during Covid-19 third wave. Importance of Vaccination. She also answered various queries of participants.





# Cloud Computing and Security Challenges

PowerPoint Slide Show - [STRESS MANAGEMENT DURING COVID-19 PANDEMIC] - PowerPoint

## IMPACTS OF COVID-19

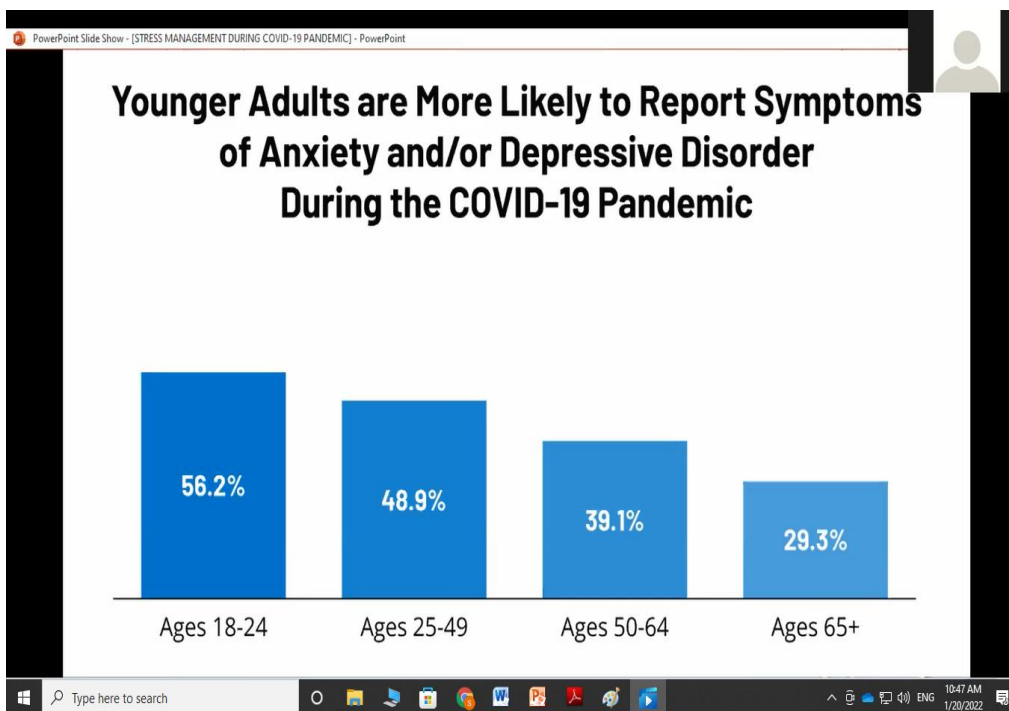
- INCREASED EXPOSURE TO KNOWN RISK FACTOR
- ECONOMIC STRESS
- JOB INSECURITY AND UNEMPLOYMENT,
- SOCIAL ISOLATION, STIGMA
- DECREASED ACCESS TO COMMUNITY SUPPORT,
- BARRIERS TO MENTAL HEALTH TREATMENT, AND
- EXACERBATED PHYSICAL HEALTH PROBLEMS, ESPECIALLY OLDER ADULTS



Displaced from home

Type here to search

10:46 AM 1/20/2022



Session by Dr. Vishkha Walke

# Cloud Computing and Security Challenges

Session No: 13

Date : 13<sup>th</sup> Jan 2022 Time 2.00 PM to 3.30 PM

Title of Session : Social Engineering and Cyber Security Research Trends

Details of Speakers:

Name: Dr. Sunil B. Mane

Qualification: Ph.D.(Computer Engineering)

Experience: 20 years of Teaching Experience

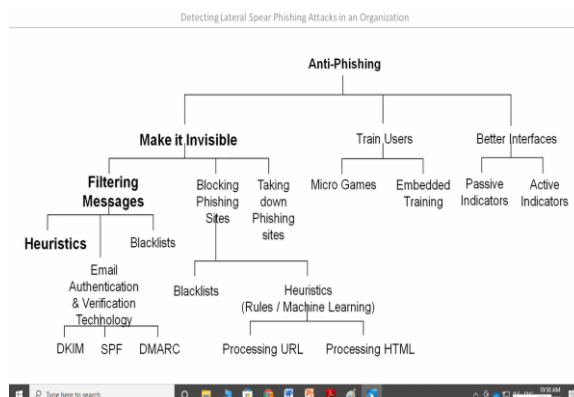
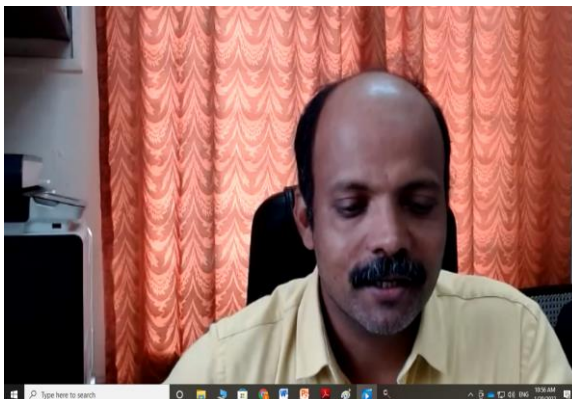
Current Position: **Associate Professor, CSE Dept.  
COEP, Pune**



## Social Engineering and Cyber Security Research Trends:

Dr. Mane who is Associate Professor in CSE dept. COEP, Pune has more than 35 research publications in various National/International Journals and Conferences. He is serving as Co-Chief Investigator for the Information Security Education and Awareness (ISEA) project, Ministry of Information Technology, Govt. of India. His areas of interests are Data Privacy, Cyber Security, Data Analytics, and Machine Learning.

During his session on Social Engineering and Cyber Security Research Trends, he discussed about need of Cyber Security, Security vs Privacy, Security Issues in Social Engineering Methods and forms of Phishing. He also conducted quiz during his session. Participants responded and liked the activity conducted by speaker.



Session by Dr. Sunil B. Mane

# Cloud Computing and Security Challenges

---

**Session No: 14**

**Date : 14<sup>th</sup> Jan 2022 Time 9.30 AM to 11.00 AM**

**Title of Session : Security Concerns and Solutions at Different Components of Virtualization**

**Details of Speakers:**

Name: Dr. Modi Chirag Navinchandra  
Qualification: Ph.D.(Computer Engineering)  
Experience: 7 years of Teaching Experience  
Current Position: **Associate Professor CSE Dept.  
National Institute of Technology Goa  
(NIT Goa)**



## **Security Concerns and Solutions at Different Components of Virtualization:**

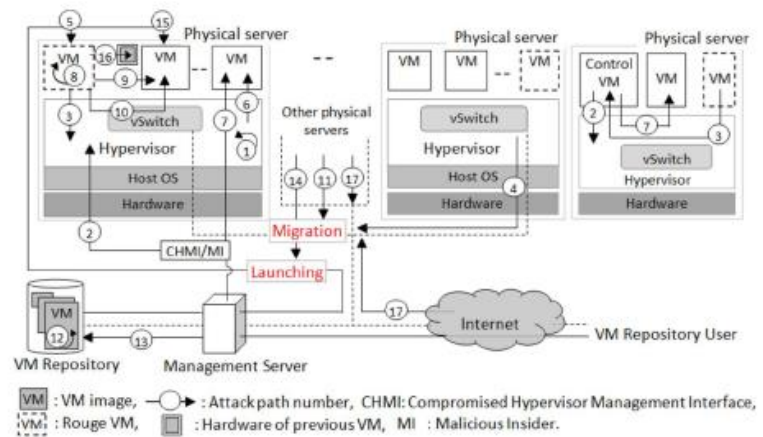
Dr. Modi Chirag who is working with NIT Goa, has expertise in, Cryptography and Network Security, Information Security and Privacy, Cloud Computing, Visual Computing. He has more than 50 Paper publications in his name and five book chapters. He received “Young Scientist Award” in the specialization of Cloud Computing, by Venus International Foundation, Chennai, India. 2015 his research paper, "Runtime Program Semantics based Malware Detection in Virtual Machines of Cloud Computing" received Best Paper Award by ICINPro 2021. During his session he addressed folloig issues:

- Virtualization and Components
- Security Challenges to Hypervisor, VM and Virtual Network
- Security Solutions to Hypervisor, Virtual Machine, Virtual Network
- Future Scope- Requirements

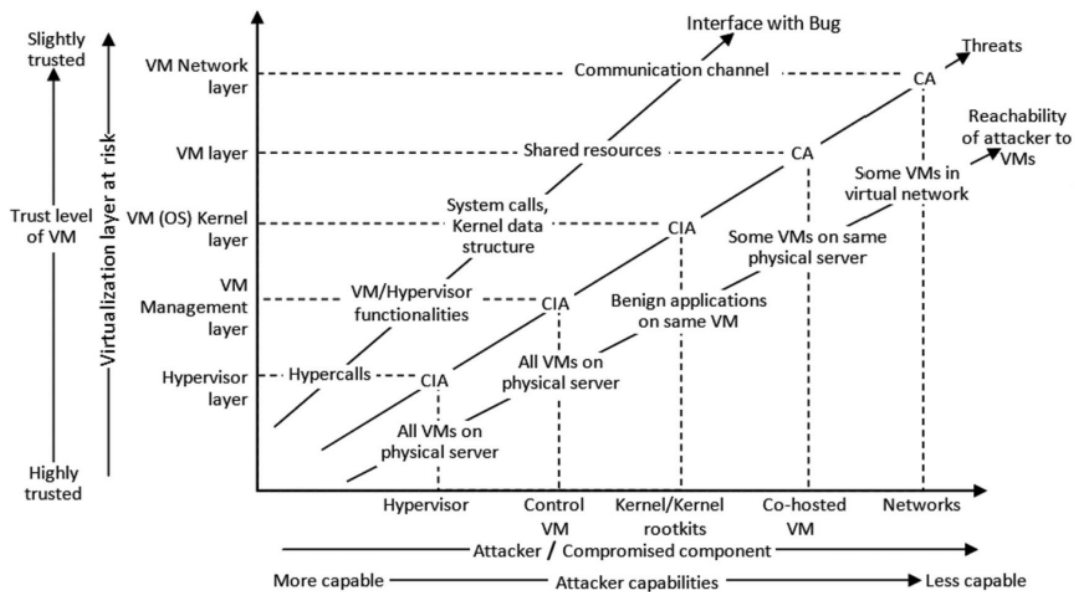
According to him, “Virtualization” is a base technology in the construct of modern computing Technologies. However, due to vulnerabilities existing in current implementations of virtualization platforms, the demand for secure virtualization is increased. The vulnerabilities, threats, and attacks at different components of virtualization inherently pose several security and privacy concerns in modern computing technologies. There is a need of an advanced security model and better access control and crypto algorithms that can target different levels of security for each component. He also identified that still there is a lot of scope for addressing the virtualization security challenges and to make it a platform for the delivery of secured and trusted computing technologies.

## Virtualization and Components

- Abstraction of H/W and S/W resources allowing heterogeneous architectures to run on the same hardware
- Components:
  - Hypervisor (Type I and Type II)
  - VM
  - Virtual network



## Security Challenges to VM (Running State)-Threats



Session by Dr. Chirag Modi

# Cloud Computing and Security Challenges

**Session No: 15**

**Date :** 14<sup>th</sup> Jan 2022 Time 11.30 AM to 1.00 PM

**Title of Session : National Education Policy**

**Details of Speakers:**

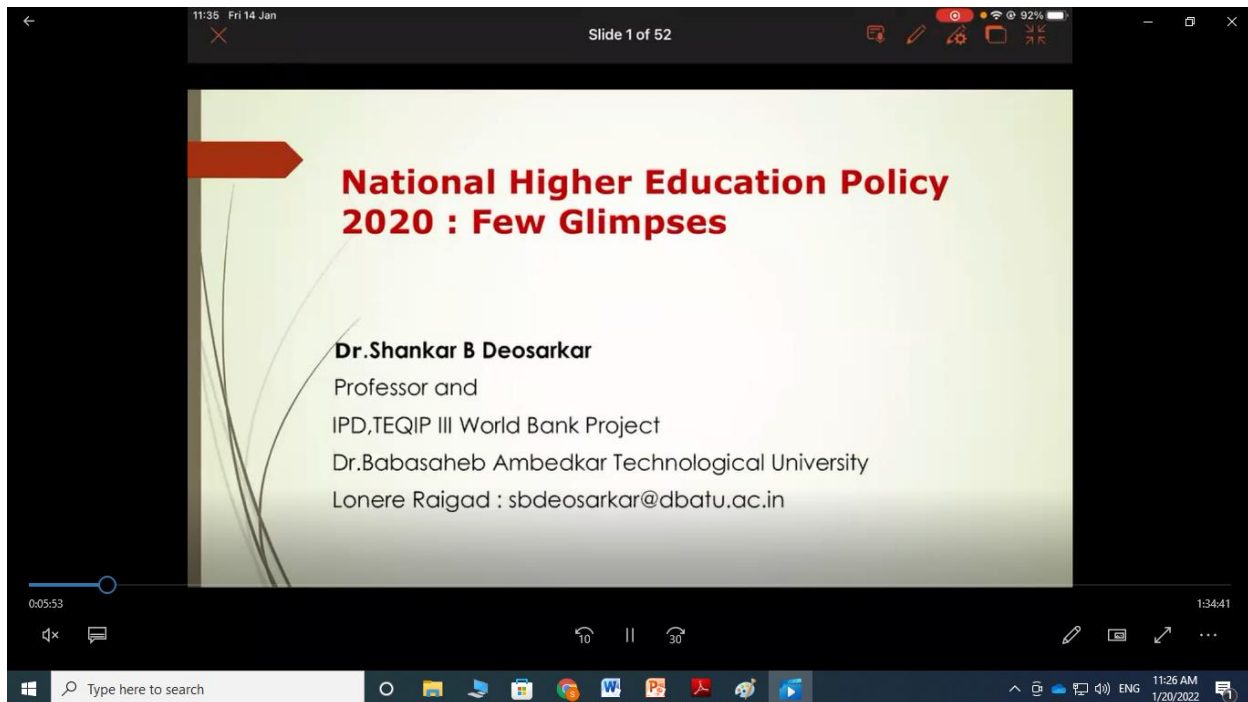
Name: Dr. S.B. Deosarkar  
Qualification: Ph.D.(E&TC)  
Experience: 32 years of Teaching Experience  
Current Position: Professor and Institute Project Director  
IPD, TEQIP World Bank Project at  
DBATU Lonere



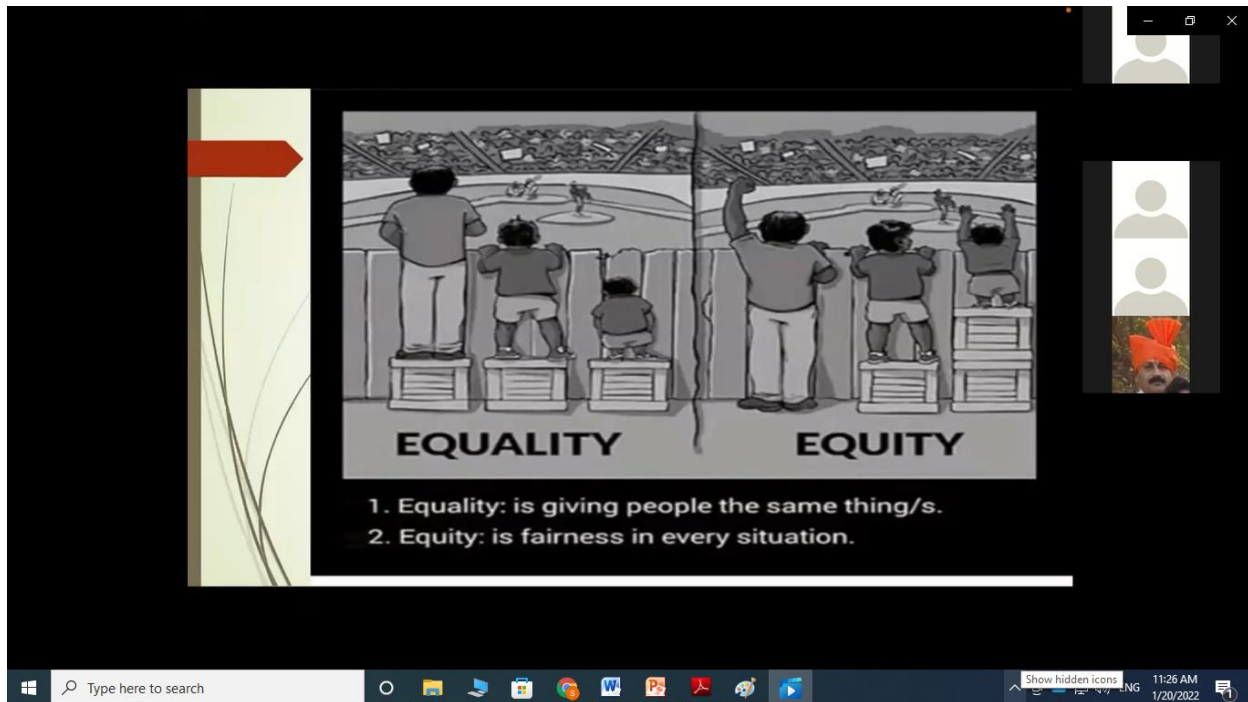
## **National Education Policy:**

Dr. S.B. Deosarkar who is Professor and Institute Project Director IPD, TEQIP World Bank Project at DBATU Lonere has done significant contributions and outstanding leadership in the field of Technical Education. His session on, “**National Education Policy 2020**”, was definitely an addition to the our program.

He discussed all the aspects of National Education Policy which is built on the foundational pillars of Access, Equity, Quality, Affordability and Accountability. This policy is aligned to the 2030 Agenda for Sustainable Development and aims to transform India into a vibrant knowledge society and global knowledge superpower by making both school and college education more holistic, flexible, multidisciplinary, suited to 21st century needs and aimed at bringing out the unique capabilities of each student.







## Session by Dr. S.B. Deosarkar on NEP -2020

**Session No: 16**

**Date : 14<sup>th</sup> Jan 2022 Time 2.00 PM to 3.30 PM**

**Title of Session : Game-Theoretic Models in the Social Cloud**

**Details of Speakers:**

Name: Dr. Pramod Mane  
Qualification: Ph.D.(Computer Engineering)  
IIT Indore  
Research Interest: Distributed Systems  
Network Games and Economics  
Algorithmic Social Sciences  
Current Position: **Assistant Professor, Dept. of CSE  
Indian Institute of Information  
Technology (IIIT) Dharwad.**



### **Game-Theoretic Models in the Social Cloud:**

Dr. Pramod Mane who is Assistant Professor, Dept. of CSE in Indian Institute of Information Technology (IIIT) Dharwad conducted a session on most interesting topic of “Social Cloud”. During his session:

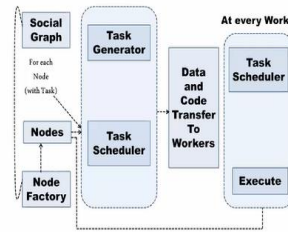
- Introduced the socially based resource sharing systems
- Discussed about Social cloud and security challenges
- Social Storage Network Model



# Cloud Computing and Security Challenges

- Social Storage Cloud Model
- Social Compute Cloud model
- Stable and Efficient Social Storage Cloud Formation
- Resource availability and stability in Social Clouds

## Cases: Trustworthy computing on social networks



- In this framework users perform a local resource sharing (users share resource with only their neighbors).
- Users altruistically share storage resources with each other and perform a computational task on behalf of each other.
- In a typical scenario, a user who needs to perform a computational task outsources the task to its neighbor friends and then the neighbor friends perform the task for the user.

## Social Storage Cloud: Storage Allocation

- An agent  $i$ 's **importance** in  $\mathfrak{g}$  is based on its closeness [24], which can be captured as below

$$\Phi_i(\mathfrak{g}) = \sum_{j \in \mathfrak{g} \setminus \{i\}} \frac{1}{d_{ij}(\mathfrak{g})} \quad (3)$$

- For allocating a storage space to agent  $i$ , agent  $j$  computes a probability distribution on all agents in  $\mathfrak{g}$  as below.

$$\alpha_{ij}(\mathfrak{g}) = \frac{\frac{1}{d_{ij}(\mathfrak{g})}}{\left[ \sum_{k \in \mathfrak{g} \setminus \{i,j\}} \frac{1}{d_{ik}(\mathfrak{g})} \right] + \frac{1}{d_{ij}(\mathfrak{g})}} \quad (4)$$

- The probability that an agent  $i$  obtains storage space **from at least one agent** in  $\mathfrak{g}$  is

$$\gamma_i(\mathfrak{g}) = 1 - \prod_{j \in \mathfrak{g} \setminus \{i\}} (1 - \alpha_{ij}(\mathfrak{g})) \quad (5)$$

Session by Dr. Pramod Mane

# Cloud Computing and Security Challenges

---

**Session No: 17**

**Date : 15<sup>th</sup> Jan 2022 Time 9.30 AM to 11.00 AM**

**Title of Session : Introduction to MITRE ATT&CK Framework**

**Details of Speakers:**

Name: Mr. Viren Chaudhari

Qualification: B.Tech.(Computer Engg.)

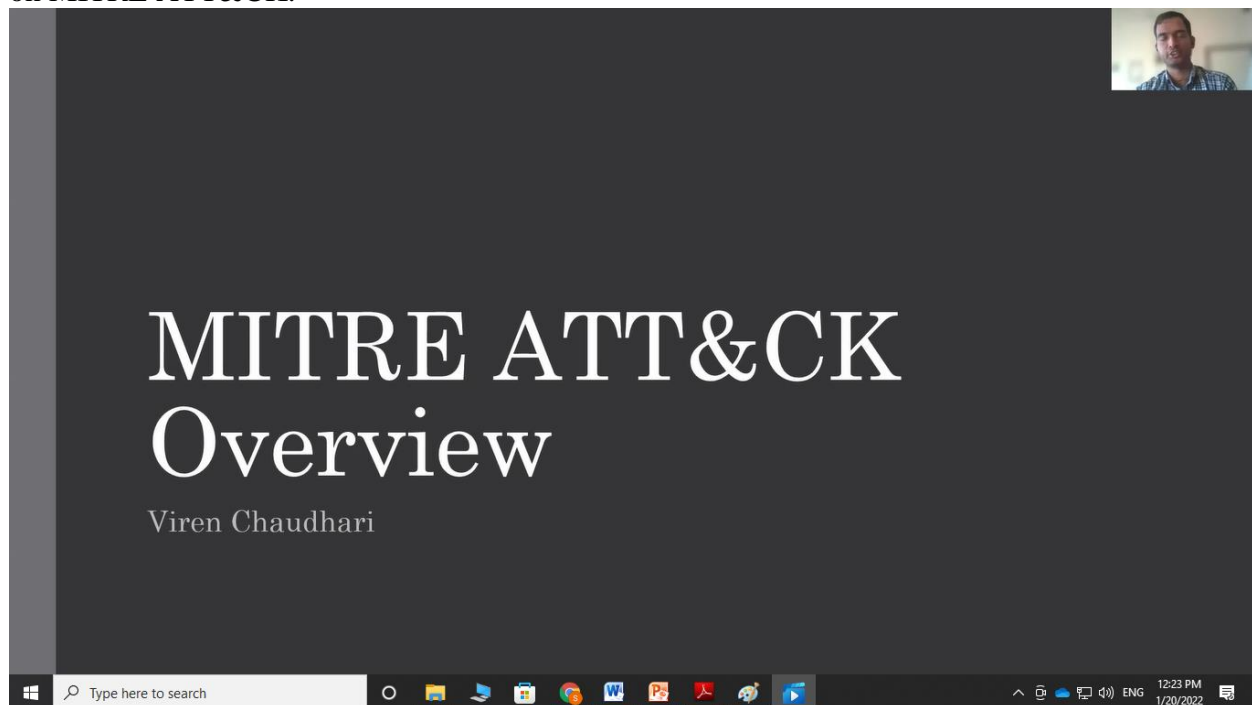
Experience: 6+ years of Research and Development experience

Current Position: **Senior Engineer Threat Researcher at Qualys IT Security Solutions**



**Introduction to MITRE ATT&CK Framework:**

Mr. Viren Chaudhari who is working as Senior Engineer Threat Researcher at Qualys IT Security Solutions, delivered session on MITRE ATT&CK Framework. He is a Senior Engineer Threat Researcher at Qualys. His expertise is in Threat hunting and Threat Intelligence. He has contributed to MITRE ATT&CK Framework and like studying Geopolitical threats, malware/APT campaigns, and new attack techniques. During his session he delivered a session on MITRE ATT&CK.



# Cloud Computing and Security Challenges

The screenshot shows a Zoom meeting interface. On the left, a slide titled "Dave Bianco's Pyramid of Pain" displays a pyramid with five levels, each representing a different type of security artifact and its associated difficulty of detection. The pyramid is divided into five horizontal sections, each with a color and a label. To the right of the pyramid, the corresponding difficulty level is listed. The Windows taskbar at the bottom shows the search bar and several open applications.

Artifact	Difficulty
TTPs	•Tough!
Tools	•Challenging
Network/Host Artifacts	•Annoying
Domain Names	•Simple
IP Addresses	•Easy
Hash Values	•Trivial

The screenshot shows the MITRE ATT&CK Navigator website. The browser tabs include "Data Encrypted for Impact", "ATT&CK Navigator", "ATT&CK EVALUATIONS", "VirusTotal - File - 072291...", and "Post Attendee - Zoom". The address bar shows the URL "attack.mitre.org/techniques/T1486/". The page title is "Data Encrypted for Impact". The main content area describes the technique, stating that adversaries may encrypt data on target systems to interrupt availability. A sidebar on the left lists various techniques, with "Data Encrypted for Impact" selected. A right sidebar provides details about the technique, including its ID (T1486), sub-techniques (None), tactic (Impact), platforms (IaaS, Linux, Windows, macOS), permissions (Required: Administrator, SYSTEM, User, root), and impact type (Availability).

**MITRE | ATT&CK**

Matrices Tactics Techniques Data Sources Mitigations Groups Software Resources Blog

Contribute Search

TECHNIQUES

- Data Encrypted for Impact
- Data Manipulation
- Defacement
- Disk Wipe
- Endpoint Denial of Service
- Firmware Corruption
- Inhibit System Recovery
- Network Denial of Service
- Resource Hijacking
- Service Stop
- System Shutdown/Reboot

Home > Techniques > Enterprise > Data Encrypted for Impact

## Data Encrypted for Impact

Adversaries may encrypt data on target systems or on large numbers of systems in a network to interrupt availability to system and network resources. They can attempt to render stored data inaccessible by encrypting files or data on local and remote drives and withholding access to a decryption key. This may be done in order to extract monetary compensation from a victim in exchange for decryption or a decryption key (ransomware) or to render data permanently inaccessible in cases where the key is not saved or transmitted.<sup>[1][2][3][4]</sup> In the case of ransomware, it is typical that common user files like Office documents, PDFs, images, videos, audio, text, and source code files will be encrypted. In some cases, adversaries may encrypt critical system files, disk partitions, and the MBR.<sup>[5]</sup>

To maximize impact on the target organization, malware designed for encrypting

**ID: T1486**

**Sub-techniques:** No sub-techniques

**Tactic:** Impact

**Platforms:** IaaS, Linux, Windows, macOS

**Permissions Required:** Administrator, SYSTEM, User, root

**Impact Type:** Availability

**Contributors:** Oleg Kolesnikov, Securonix

Session by Mr. Viren Chaudhari

# Cloud Computing and Security Challenges

---

**Session No: 18**

**Date : 15<sup>th</sup> Jan 2022 Time 11.30 AM to 1.00 PM**

**Title of Session : Final Assessment Test and Participant Feedback to analyze the Outcome of Program**

**Details of Speakers:**

Name: Dr. Sheetal A. Takale  
Qualification: Ph.D.(Computer Sci. and Engg.)  
Experience: 24 years of Teaching Experience  
Current Position: **Professor and Head Information Technology dept., VPKBIET, Baramati**



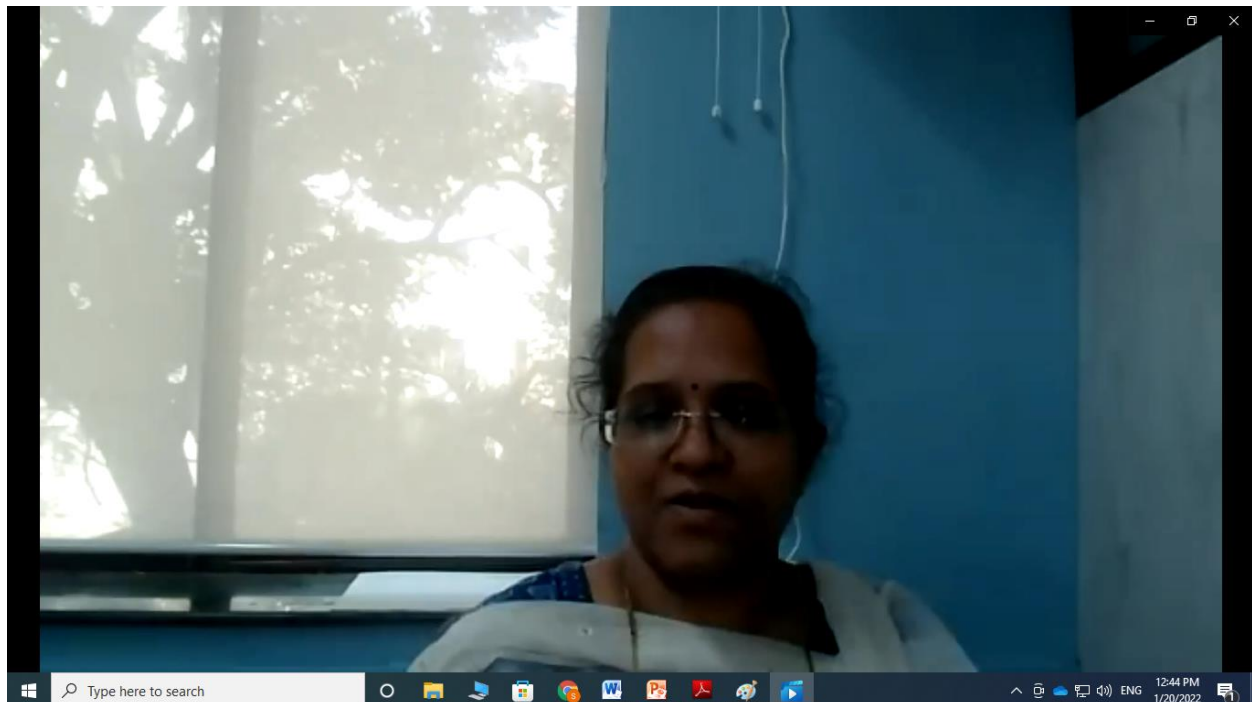
## **Final Assessment Test and Participant Feedback to analyze the Outcome of Program:**

Dr. Sheetal A. Takale who is Coordinator of the program and also Professor and Head Information Technology dept., VPKBIET, Baramati conducted a session for Final Assessment Test and Participant Feedback to analyze the Outcome of Program. The final assessment test was conducted through Google form. Also the participant feedback was collected through Google form. The feedback was utilized by her for analysis of outcome of the program.





Online test was conducted as per the guidelines provided by AICTE-ISTE. Test Marks were displayed and communicated to participants.

Google Form Link for Final Assessment Test : <https://forms.gle/nwRwCs63nuVE2FGn7>

Google Form link for Overall Feedback: <https://forms.gle/1hFoBEdTtjc5VpcF8>



# Cloud Computing and Security Challenges

 15\_Jan\_Final\_Test   

Questions Responses 67 Settings Total points: 100

## Final Test: 15th Jan 2022

AICTE-ISTE approved INDUCTION/ REFRESHER Program on "Cloud Computing and Security Challenges", (10th Jan 2022 to 15th Jan 2022)

Email \*

Valid email







This form is collecting emails. [Change settings](#)

Name of Participant \*

Short answer text

Reg. No. \*

Short answer text



**Session No: 19**

**Date : 15<sup>th</sup> Jan 2022 Time 2.00 PM to 3.00 PM**

**Title of Session : Valedictory Program**

**Details of Speakers:**

1. Dr. P. K. Desai (President, ISTE)
2. Col. B. Venkat (Director FDP Cell, AICTE)
3. Dr. R.S. Bichkar(Principal VPKBIET, Baramati)

The Refresher Program concluded with the remarks and appreciation by Dr. P.K. Desai, President ISTE, Col B. Vankat, Director FDP Cell, AICTE and Hon Principal, VPKBIET, Baramati.

Speakers of the session addressed the participants and also appreciated the coordinator of the program and organizing team. Coordinator of the program presented an overview of conduction of program and outcome achieved through the conduction of program.



## Cloud Computing and Security Challenges



**Dr. Sheetal A. Takale Presenting Overview of Program**

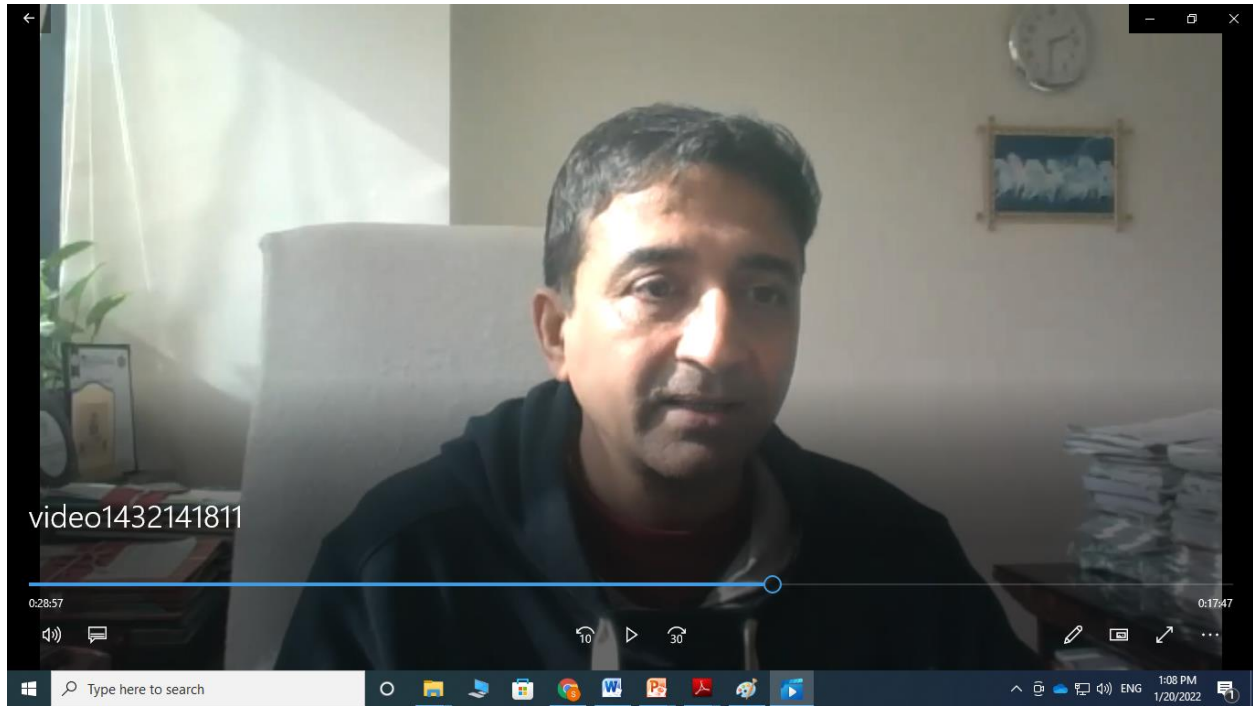


**Dr. R.S. Bichkar, Principal VPKBIET, Baramati Addressing the Participants**



## Cloud Computing and Security Challenges

---



**Col. B. Venkat Addressing the Participants**



**Dr. P.K. Desai Addressing the Participants**

## Acknowledgements

We are thankful to AICTE, ISTE for providing the opportunity for conducting the Refresher program for Faculty of Technical Institutes by sanctioning the Grant. Also we are thankful to AICTE and ISTE for providing complete support during the conduction of the program. We extend our special thanks to Col B. Venkat, Director FDP Cell, AICTE, Dr. P.K. Desai, President, ISTE, and Prof. V.D. Vaidya, Executive Secretary, ISTE for motivation, support and guidance since the grant of the proposal to conduct of the six days program. We are thankful to management of Vidya Pratishthan for providing all support and encouragement. We are thankful to speakers of the program more ecstatic and remarkable. We are also thankful to the learned participants for their active participation.

Dr. S.A. Takale  
Coordinator, VPKBIET, Baramati

Dr. R.S. Bichkar  
Principal, VPKBIET, Baramati