



Government of India

Ministry of Electronics and information Technology

National Informatics Centre, Himachal Pradesh, Shimla

Technical Presentations by NIC HP Officials: 20-July-2024

As part of an ongoing series of 10-minute technical talks presented by NIC officials of their choice on a regular basis, the recent technical session held on 20-July-2024.

The details of the presenters, along with their topics are as follows:

S.No.	Name	Designation	Topic	Rating (5.0)
1.	Sh. Sandeep Sood	Scientist-F	Firebase/Google Cloud Messaging	4.4
2.	Sh. Vimal Kumar Sharma	Scientist-F	Smart Data Capture	4.1
3.	Sh. Vinod Kumar Garg	Scientist-F	Data Backup & Recovery	4.3
4.	Sh. Mangal Singh	Scientist-D	Artificial Intelligence	4.1

Firestore/Google Cloud Messaging

The presentation on Firestore/Google Cloud Messaging (FCM/GCM)), formerly known as Google Cloud Messaging (GCM), by delivered by Sh. Sandeep Sood. The talk focuses on the cross-platform messaging solution provided by FCM, which allows for reliable message delivery at no cost. FCM is a robust messaging solution that supports cross-platform communication. It offers a free service for sending messages. The Firestore Notification Composer provides a GUI for composing messages. For full automation, message building can be integrated into web solutions using FCM. Two types of messages are supported: Notification/Display messages and Data Messages.

Notification messages are handled by the FCM SDK and include predefined keys like Title, Text, and Image URL. Whereas Data Messages are handled by the client app and can contain user-defined key-value pairs. Both message types can include a data payload, with a maximum size of 4096 bytes. Messages composed via the Firestore console are limited to 1000 characters.



Sh. Sandeep Sood giving the Technical Talk on Firebase/Google Cloud Messaging

FCM SDK automatically displays notification messages when the app is running in the background. When the app is in use, the notification message display is handled by the client app.

Smart Data Capture

Sh. Vimal Sharma delivered a presentation on Smart Data Capture (SDC), a technology leveraging computer vision techniques such as Optical Character Recognition (OCR), barcode scanning, and object recognition to extract and process information from semi-structured and unstructured data sources. The presentation highlights the importance of SDC in transforming business processes, enhancing customer experiences, and empowering decision-making through real-time data insights.

The challenge of efficiently capturing and processing data from various sources has led to the development of Smart Data Capture technologies. These technologies aim to automate data extraction, making it more efficient, scalable, and future-proof for organizations.



Sh. Vimal Sharma giving presentation on smart Data Capture

Barcode and QR Code Scanning utilizes barcodes and QR codes to extract information. Optical Character Recognition (OCR) / Intelligent Character Recognition (ICR) converts typed or handwritten text into machine-readable form. Intelligent Document Recognition (IDR) combines OCR/ICR with AI to digitize, classify, and store data from documents. ID Scanning captures data from ID cards, passports, and other identification documents.

SDC technologies significantly enhance data capture efficiency and scalability, reducing human error and costs.

Smart Data Capture technologies represent a significant advancement in data processing, offering organizations a powerful tool to streamline operations, enhance decision-making, and improve customer experiences. The integration of these technologies into various ecosystems and applications underscores their versatility and potential for future growth.

Data Backup & Recovery

Sh. Vinod garg has given a brief introduction to the critical process of data backup and recovery, focusing on the importance of safeguarding personal data against potential data loss. It outlines the various types of data backups, objectives, and the 3-2-1 rule for data protection. Additionally, it discusses the use of different storage media for personal data backup, including DVDs, HD DVDs, and Blu-ray disks, highlighting their capacities and durability. The document concludes with a brief mention of archival DVDs and M-DVDs, emphasizing their longevity and cost considerations.



Sh. Vinod Garg giving presentation on Data Backup and Recovery

He explained the significance of data backup and recovery in protecting against data loss due to hardware failure, software failure, natural disasters, cyber-attacks, or human error.

He discussed three main types of backups Full, incremental, and differential, each serving different purposes in data protection strategies.

The objectives of Data Backup & Recovery include the Recovery Point Objective (RPO), Recovery Time Objective (RTO), and Maximum Tolerable Downtime (MTD), which are crucial for disaster recovery planning.

3-2-1 Rule of Data Backup emphasizes the importance of maintaining three copies of data, on two different storage media, with one copy stored off-site, to ensure data resilience.

Artificial Intelligence (AI)

Sh. Mangal Singh explores the integration of Artificial Intelligence (AI) across major technology companies, highlighting their significant AI-driven products and services. It covers Amazon, Google, Apple, Facebook, Microsoft, and NVIDIA, showcasing their diverse applications of AI in e-commerce, search engines, personal assistants, social networking, cloud services, and hardware acceleration.



Sh. Mangal Singh giving presentation on Artificial Intelligence

The rapid advancement of AI technology has presented both opportunities and challenges for tech companies. Integrating AI into their products and services has become a strategic imperative to stay competitive and innovate.

Amazon utilizes AI in Alexa, Amazon Go Store, and the recommendation engine on Amazon Prime. Google DeepMind, an AI research company acquired by Google, explores various AI applications. Apple has Siri and the A12 chip with a neural engine for speech and image recognition, along with acquisitions of AI startups. Facebook employs AI for facial recognition, deep text analysis, and language translation, with an internal AI Research group (FAIR). Microsoft features AI in Cortana, Bing, and Microsoft 365, with acquisitions like XOXCO. NVIDIA focuses on hardware-centric AI with specialized GPUs for deep learning and AI workloads.

AI has become a critical component in the technology sector, with major companies leveraging AI to enhance their products and services. From software to hardware, AI is transforming the tech landscape, driving automation, machine learning, natural language processing, robotics, and more.

Quiz Competition on Mobile App

A quiz competition was also organized based on the technical presentations delivered by NIC Officials. A total of 33 officials participated in the quiz competition which was held on the Hindi Bodh Mobile App developed by NIC HP. Fifteen multiple-choice questions based on the technical content delivered by the officers were asked in the quiz competition.

The result of the quiz competition is given below:

Position	Participant Name	Designation	Place of Posting
1 st	Sh. Ajay Singh Chahal	SIO-Cum-Scientist-G	NIC HP State Centre
2 nd	Sh. Swetansh Shatak	Scientific/Technical Assistant-B	NIC Distt Centre Solan
3 rd	Sh. Sanjay Gupta	Scientist-E	NIC Distt Centre Kullu



NIC HP officials attending the technical session

During the Technical Talk Session, topics such as data leaks and their prevention, as well as the use of artificial intelligence by various companies, were discussed. Additionally, issues with “Attendance being marked by Face Auth” were discussed. Sh. Mangal Singh, Scientist-D suggested that technical news part can also be included in these sessions, which has been accepted by all. In this segment, an official can present and discuss IT-related news from the past 15 days. Each presentation should include a link to the source of the news and will be followed by a 5-minute discussion period.

At the end of the talk, the SIO suggested some changes to the ‘Hindi Bodh’ mobile app for iOS. It was recommended to display an alert message one minute before the end of a quiz and include all earlier PPTs in the App for viewing/ marking.

It has also been decided that all Group Heads, DIOs, DIAs, and group members will give a 5-7 minute presentation on the projects they are handling. The presentations should include the Existing Projects, Group Constitution/Roles, Work done in last 6 months, Achievements of last 3 months and Future Plans (5 slides max in 5 to 7 minutes). Every official giving the presentation based on their projects will give 3 questions so that 1 question would be included in the Technical Talk Quiz.

The following NIC officers have volunteered to give presentations during the upcoming meeting scheduled for 03-August-2024 (Saturday).

S. No.	Presenter Name	Designation	Description	Place of Posting
1.	Sh. Sanjay Kumar	Scientist-F	Technical Presentation	NIC HP CGO Complex
2.	Sh. Akhilesh Bharati	Scientist-E	Technical Presentation	NIC Distt Centre Mandi
3.	Sh. Sanjay Gupta	Scientist-E	Technical Presentation	NIC Distt Centre Kullu

4	Sh. Ajay Singh Chahal	Scientist-G	Group Presentation	NIC HP State Centre, Shimla
5	Sh. Prithvi Raj Negi	Scientist-C	Technical News	NIC HP State Centre, Shimla

After these presentations, presentation points, new ideas/ suggestions, issues being faced in work-place will be discussed, followed by the Quiz (max 20 questions), including 4 questions from News and 1 from Projects presentations (Group Head/ Members).

The following officials were present in the technical talk on 20-07-2024:

NIC HP State Centre		
1	Sh. Ajay Singh Chahal	SIO-Cum-Scientist-G
2	Sh. Lalit Kapoor	Scientist-F
3	Sh. Sandeep Sood	Scientist-F
4	Sh. Sanjay Kumar	Scientist-F, CGO
5	Sh. Sanjay Sharma	Scientist-F
6	Sh. Vijay Kumar Gupta	Scientist-F
7	Sh. Vimal Kumar Sharma	Scientist-F
8	Sh. Sandeep Kumar	Scientist-E, Vidhan Sabha
9	Sh. Ashish Sharma	Scientist-D
10	Sh. Mangal Singh	Scientist-D, CGO
11	Sh. Sarvjeet Kumar	Scientist-C
12	Smt. Vandana Sankhayan	Scientist-C
13	Sh. Mukesh Kumar	Scientist-D
14	Sh. Prithvi Raj	Scientist-C
15	Sh. Jitender Sharma	Scientific Officer -SB, High Court
16	Smt. Pooja Mann	Scientific/Technical Assistant-A
17	Sh. Himanshu Gupta	Steno Grade-III
District Centre Bilaspur		
18	Sh. Rakesh Kumar	Scientist-D
District Centre Hamirpur		
19	Sh. Vinod Kumar Garg	Scientist-F
District Centre Kangra		

20	Sh. Bhupinder Pathak	Scientist-F
21	Sh. Akshay Mehta	Scientist-E
District Centre Kinnaur		
22	Sh. Balwan Singh	Scientist-D
District Centre Kullu		
23	Sh. Brijender Kumar Dogra	Scientist-E
24	Sh. Sanjay Gupta	Scientist-E
District Centre Lahual & Spiti		
25	Sh. Jagdeep	Scientific/Technical Assistant-A
District Centre Mandi		
26	Sh. Akhilesh Bharati	Scientist-E
District Centre Shimla		
27	Sh. Pankaj Gupta	Scientist-F
28	Sh. Deepak Kumar	Scientist-C
District Centre Sirmour		
29	Sh. Vijay Kumar	Scientist-E
30	Sh. Mohan Rakesh Aggarwal	Scientist-D
District Centre Solan		
31	Sh. Sanjeev Kumar	Scientist-C
32	Sh. Swetansh Shatak	Scientific/Technical Assistant-B
District Centre Una		
33	Sh. Bhupinder Singh	Scientist-D