



# CTC(T&IT), CRPF



Monthly

# e-Newsletter

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**“All our dreams can come true if we have  
the courage to pursue them.””**

**— A P J Abdul Kalam**

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## **READER'S CENTER**

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# Solid State Drive

SSD drive works completely different than a HDD. It uses a solid state medium, typically NAND (often known as flash). Data is written to or read from the NAND by a controller, which is consider the brains of the device.

With SSD, there is no variable seek time or rotational latency because all the parts of the SSD can be accessed in the same amount of time. SSD read and write speeds are uneven, so data reads are very fast, but SSD write speeds are quite slower. That is because SSD storage is made up of individual NAND cells, which helps you to store one bit of data, and groups of cells are organized into pages. Moreover, groups of pages are organized into blocks



## SSD Vs HDD Speed

In terms of speed, SSDs are much faster than HDDs because SSDs does not have electrical circuitry and moving parts as HDD. A typical 7200 RPM HDD can deliver read/write speed of 80 to 160 MB/s while a typical SSD can deliver read/write speed of 200 to 550 MB/s which makes it an ideal choice for better performance.

## Benefits For Using SSD drive:

- SSD drive offers access speed of 35 to 100 micro-second. So it is able to deliver 100 times the performance of HDDs
- SSDs have lightweight components or moving parts, as they are more mobile-friendly and are much better suited for constant traveling.
- SSD drives are resistant and highly durable
- SDD uses flash memory to store data, which provides better reliability

## Disadvantages of SSD

- Upfront cost of for SDD is much higher than HDDs
- SSDs have a limited number of times data can be written, erased, and rewritten to a portion of the drive.
- The maximum capacity of an SSD is limited. Though, advancements in flash memory are consistently increasing the storage capacity of SSDs.



| Hard Disk Drive                                                                                      | Solid State Drive                                                                                                        |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| HDD has longer Read and Write time.                                                                  | SSD has a shorter Read and Write time.                                                                                   |
| HDD has higher latency.                                                                              | SSD has a lower latency.                                                                                                 |
| HDD supports fewer I/O operations per second (IOPS).                                                 | SSD supports more I/O operations per second(IOPS).                                                                       |
| Over a longer time, and with larger files stored on an HDD, there is a high chance of fragmentation. | Fragmentation doesn't occur on an SSD drive.                                                                             |
| HDD is available in various different capacities.                                                    | An SSD drive offers limited storage capacities.                                                                          |
| HDD stands for Hard Disk Drive.                                                                      | SSD stands for Solid State Drive.                                                                                        |
| HDD offers a slower speed for reading and writing data.                                              | SSD is faster at reading and writing data.                                                                               |
| An HDD weighs more.                                                                                  | SDD drives are lighter than HDD drives as they don't have the rotating disks spindle, and mirror.                        |
| The performance of HDD drives worsens because of the fragmentation.                                  | SSD drive performance is never impacted by fragmentation.                                                                |
| The moving parts of HDDs make them vulnerable to crashes and damage because of vibration.            | SSD drives can tolerate vibration up to 2000Hz, that is more than HDD.                                                   |
| HDD contains moving mechanical parts, like the arm.                                                  | SSD does not contain mechanical parts, only electronic parts like ICs.                                                   |
| HDD drive is older and more traditional.                                                             | SSD is a newer type of storage drive.                                                                                    |
| HDD can produce noise due to mechanical movements.                                                   | SSD does not produce noise.                                                                                              |
| HDD are usually 3.5" and 2.5" size for desktop and laptops.                                          | SDD is available in 2.5 inch, 1.8" and 1.0", increasing the available space in a computer, especially desktop or server. |
| The HDD has moving part and magnetic platters. With more uses they are prone to fail.                | The SDD drive has no moving parts. With more uses they are less likely to fail.                                          |

# MOBILE MARKETING Vs DIGITAL MARKETING

**DIGITAL MARKETING.** is a term to describe marketing strategy that involves reaching customers through digital channels such as websites, social media, search engine advertising and email. Mobile marketing is a component of digital marketing that targets customers who access information through mobile devices.

**MOBILE MARKETING.** although technically a part of digital marketing, has quickly risen to become the largest component and is frequently given its own team who work separately from others in the marketing department.

**OVERVIEW DIGITAL MARKETING.** Digital marketing technically encompasses everything that involves sending marketing messages and launching campaigns through websites, social media, email, WiFi analytics or any other digital means. It also encompasses marketing tailored to different devices, including laptops, tablets and mobiles.

**DIGITAL MARKETING HAS MANY COMPONENTS.** They include strategies, tools and tactics such as pay per click advertising Placing advertisements on search engine results that include keywords related to what the business offers.

**SEARCH ENGINE OPTIMIZATION.** Using content and coding on a webpage to help a site rank higher on search engine results.

**CONTENT.** Creation and publishing of content that provides useful information to people searching for specific keywords.

**WEBSITE.** Using words, images and designs to create attractive websites that also have success converting website traffic into paying customers.

**SOCIAL MEDIA.** Popular social media platforms such as Facebook, Twitter and Instagram provide marketers a chance to interact with large numbers of potential customers, having conversations on issues that involve their products and services.

**EMAIL.** Although one of the oldest digital marketing methods, email remains highly effective at reaching potential customers or keeping current customers loyal to your brand.

**DATA ANALYTICS.** Data is the tool behind all these strategies, as digital marketers use information found through data analysis to guide more targeted, successful marketing campaigns.

**MOBILE MARKETING.** Mobile marketing takes many of the above approaches, but tailors them specifically to those who use their mobile devices to conduct searches, visit social media platforms and check out websites.

This is becoming increasingly important as more consumers transition into using mobile devices to find and purchase products and services. Reports that about one third of all purchases in 2018 were on smartphones and other mobile devices. Also, Google surveys have found up to 46% of respondents report they prefer completing purchases via mobile.

The American Marketing Association provides an entire toolkit for using mobile marketing, including developing a strategy, analyzing data, tracking customer activity and properly assessing any risks.

One key step when it comes to both digital and mobile marketing for many businesses is to hire consultants who are digital marketing professionals and can help both develop and execute marketing strategy.

**Some of those strategies include:**

Making websites mobile-friendly (Google ranks such sites higher in search engine results)  
Emphasize email, as 65% of all emails are first opened on mobile devices, according to SMS and MMS text marketing, sending messages directly to a person's mobile device. Developing mobile apps for your business.

SI/RO K ANIL KUMAR

# HTTP/3 Protocol

**HTTP 3** The new HTTP/3, based on the QUIC protocol, is anticipated to be released in late 2019. I discuss HTTP/3 briefly at the end of this article.

**HTTP/3** instead of using TCP, use Google's QUIC protocol. HTTP/3 was initially known as HTTP-over-QUIC. HTTP/3 also includes TLS 1.3 encryption, so there's no need for a separate HTTPS that bolts security onto the protocol, as there is today.

QUIC originally stood for "Quick UDP Internet Connections." This protocol is designed to be faster with lower latency than TCP. QUIC offers less overhead when establishing a connection and quicker data transfers over the connection. Unlike TCP, an error like a piece of data that gets lost along the way won't cause the connection to stop and wait for the problem to be fixed. QUIC will keep transferring other data while the issue is being resolved.

| Feature comparison  |               |               |
|---------------------|---------------|---------------|
|                     | <u>HTTP/2</u> | <u>HTTP/3</u> |
| Transport           | TCP           | QUIC          |
| Streams             | HTTP/2        | QUIC          |
| Clear-text version  | Yes           | No            |
| Independent streams | No            | Yes           |
| Header compression  | HPACK         | QPACK         |
| Server push         | Yes           | Yes           |
| Early data          | In theory     | Yes           |
| 0-RTT Handshake     | No            | Yes           |

In summary: HTTP/3 is a newer, better, faster protocol. It's a more modern solution that should deliver improved security and speed to the web.

# e-RUPI

## What is e-RUPI?



e-RUPI is a cashless and contactless instrument for digital payment. It is a QR code or SMS string-based e-Voucher, which is delivered to the mobile of the beneficiaries.

The users of this one-time payment mechanism will be able to redeem the voucher without a card, digital payments app

or internet banking access, at the service provider.

It has been developed by National Payments Corporation of India on its UPI platform, in collaboration with the Department of Financial Services, Ministry of Health & Family Welfare and National Health Authority.

e-RUPI connects the sponsors of the services with the beneficiaries and service providers in a digital manner without any physical interface. It also ensures that the payment to the service provider is made only after the transaction is completed. Being pre-paid in nature, it assures timely payment to the service provider without the involvement of any intermediary.

It is expected to be a revolutionary initiative in the direction of ensuring a leak-proof delivery of welfare services.

It can also be used for delivering services under schemes meant for providing drugs and nutritional support under Mother and Child welfare schemes, TB eradication programmes, drugs & diagnostics under schemes like Ayushman Bharat Pradhan Mantri Jan Arogya Yojana, fertilizer subsidies etc. Even the private sector can leverage these digital vouchers as part of their employee welfare and corporate social responsibility programmes.

e-RUPI is easy, safe and secure as it keeps the details of the beneficiaries completely confidential. The entire transaction process through this voucher is relatively faster and at the same time reliable, as the required amount is already stored in the voucher.

## What are e-RUPI benefits for CRPF?

Even CRPF can benefit from e-RUPI:

- CRPF can enable well-being of their employees
- End to end the digital transaction and doesn't require any physical issuance hence leading to cost reduction
- Voucher redemption can be tracked by the issuer

- Quick, safe and contactless voucher distribution
- How will hospitals benefit from e-RUPI?
- Following are the benefits for hospitals that e-RUPI might offer:
- Easy and secure - Voucher is authorized via a verification code
- Hassle-free and contactless payment collection - handling of cash or cards is not required
- Quick redemption process - The voucher can be redeemed in a few steps and lesser decline due to the pre-blocked amount
- What are e-RUPI benefits to the consumer?
- Following are e-RUPI benefits to the consumer:
- Contactless - beneficiary should not carry a printout of the voucher
- Easy redemption - 2 step redemption process
- Safe and Secure - Beneficiary doesn't need to share personal details while redemption hence privacy is maintained
- No digital or bank presence required - Consumer redeeming the voucher need not have a digital payment app or a bank account

**Which banks are live with e-RUPI?**

**Axis Bank**

**Bank of Baroda**

**Canara Bank**

**HDFC Bank**

**ICICI Bank**

**IndusInd Bank**

**Indian Bank**

**Kotak Bank**

**Punjab National Bank**

**State Bank of India**

**Union Bank of India**

# Technical Terms

## **Bandwidth :-**

Bandwidth refers to the amount of data that can travel along a connection per second.

## **Big data :-**

Big data is a term used to describe collections of data that are too big to be processed by traditional databases. Businesses usually collect big data from devices and applications to get information about their consumers' buying patterns.

## **CAD :-**

Computer-aided design is drawing or designing using technology. Architects and graphic designers use this software to create precise images.

## **Cross-platform :-**

A program is cross-platform when it can run across multiple devices, like a computer or a smartphone.

## **Defragment :-**

Your computer may save some files in separate parts and it can make opening these files take longer and take up more space on your computer. You can defragment by getting rid of files that were saved in multiple parts to speed up your processor.

## **Malware :-**

Malware is a term for malicious software, meaning software that is used for illegal purposes or to harm a system.

## **Desk checking :-**

Before a programmer releases a program or app to public use, they may desk check the program, meaning they manually check all aspects of the code to make sure it works correctly.

# QUIZ

**Which country launched satellites using the world's first rocket powered by bio-fuel?**

- [A] China
- [B] United States
- [C] Germany
- [D] Israel

**Which Indian organisation demonstrated 'Free space quantum communication' for the first time?**

- [A] HAL
- [B] BEL
- [C] ISRO
- [D] DRDO

**Internet Explorer (IE) is the flagship browser of which technology company?**

- [A] Google
- [B] Microsoft
- [C] Mozilla
- [D] Adobe

**In which city, the Centre for Research and Innovation in Artificial Intelligence has been inaugurated?**

- [A] Kharagpur
- [B] Mumbai
- [C] Hyderabad
- [D] New Delhi

**Recently, researchers from which country has developed a COVID-19 diagnostic test that uses electrodes made from graphite?**

- [A] China
- [B] United States
- [C] Japan
- [D] Switzerland

**Recently, which organization has launched 34 satellites?**

- [A] ISRO
- [B] Space X
- [C] NASA
- [D] OneWeb

**What is the name of the world's first amateur Radio Satellite?**

- [A] ORBIT
- [B] OSCAR
- [C] ODYSSEY
- [D] ORANGE

**Which organisation is to supply the Super Rapid Gun Mounts (SRGM) for Indian Navy?**

- [A] HAL
- [B] DRDO
- [C] BHEL
- [D] OFB

**Which Ship of the Indian Navy, has been decommissioned after 41 years into service?**

- [A] INS Chennai
- [B] INS Kolkata
- [C] INS Rajput
- [D] INS Kalvari

**What is the name of the medical device which concentrates oxygen from ambient air?**

- [A] Nebuliser
- [B] Oxygen Concentrator
- [C] Oxygen Ventilator
- [D] Oxygen Generator

## Acknowledgement

We are highly thankful for reading out this compilation and hope it will be useful for you in our day to day professional and personal life. We would like to hear your interest areas, suggestions from you to make this newsletter more informative and interesting. Your views will definitely help us to create this newsletter as an effective medium to reach you with latest development in the fields of communication and technology.



R&D Team

CTC T&IT CRPF, Ranchi, Jharkhand

[ctcit@crpf.gov.in](mailto:ctcit@crpf.gov.in)

## Answers to the Quiz

|   |   |   |   |   |   |   |   |   |    |
|---|---|---|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| B | C | B | C | B | D | B | C | C | B  |