End-to-End Encryption

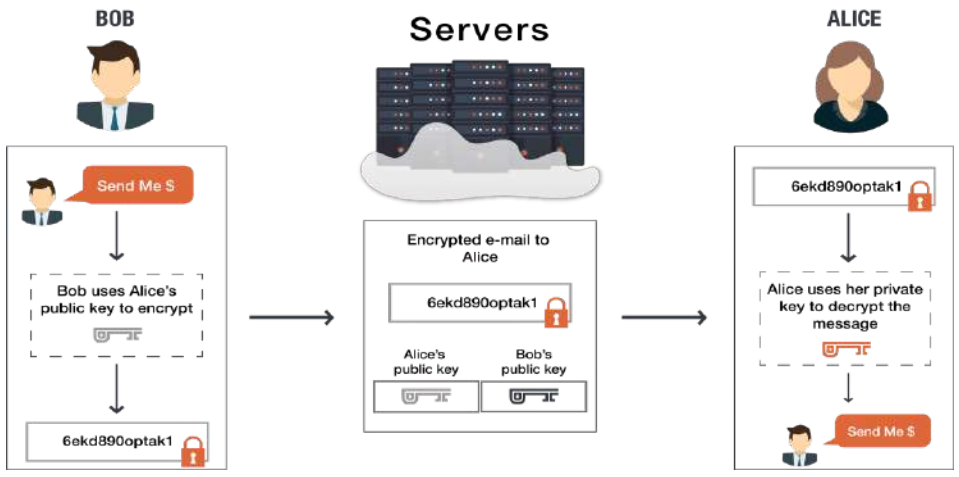
❖ Context

➢ Recently, **Apple** announced it will be increasing the number of data points protected by **end-to-end encryption** on iCloud from 14 to 23 categories.

➢ The company claimed that with end-to-end encryption, user **data will be protected even in case data is breached in the cloud.**

End-to-End Encryption (E2EE)

- **About**
  - It is a **communication process** that encrypts data being shared between two devices.
  - It **prevents third parties** like cloud service providers, internet service providers (ISPs) and cybercriminals **from accessing data while it is being transferred.**
  - End-to-end encryption by contrast provides the **gold standard** for protecting communication.
  - In an end-to-end encrypted system, the only people who can access the data are the **sender** and the **intended recipient(s)** – no one else.
  - Neither hackers nor unwanted third parties can access the encrypted data on the server.
  - In true end-to-end, encryption **occurs at the device level.**
  - Messages and files are **encrypted before they leave the phone or compute**r and aren't decrypted until they reach their destination.
  - Hackers can't access data on the server because they don't have the **private keys** required to decrypt the data.
  - Instead, secret keys are stored on the individual user's device.
- **Mechanism**
  - The process of end-to-end encryption **uses an algorithm** that **transforms standard text into an unreadable format.**
  - This format **can only be unscrambled and read by those with the decryption keys,** which are only stored on endpoints and not with any third parties including companies providing the service.



- **Significance**
  - End-to-end encryption has long been used when transferring **business documents, financial details, legal proceedings, and personal conversations.**
  - It can also be **used to control users' authorisation** when accessing stored data.
  - It is also used to secure passwords, protect stored data and safeguard data on **cloud storage**.

NaVIC and L1 frequency

❖ Context

➢ The Indian Space Research Organisation (ISRO) is introducing the **L1 frequency** in all its future satellites with an aim to promote the civilian use of Navigation with the Indian Constellation (NavIC).

Key Highlights

- The next satellites will start from **NVS-01** onwards.
- The NVS-01 satellite is set to replace one of ISRO's seven navigational satellites.
- Two of these satellites — **IRNSS-1B and IRNSS-1C** — will complete their 10-year mission life in 2024.
- The **L1 frequency is one of the most commonly used frequencies** in the Global Positioning System (GPS).
- Its use will increase the use of the regional navigation system in wearable devices and

NaVIC

- **Developed by ISRO,** NavIC was erstwhile known as **Indian Regional Navigation Satellite System (IRNSS).**
- The first three satellites of the constellation were launched in 2013 and 2014. It became operational by 2018.
- It is designed with a **constellation of 7 satellites and a network of ground stations** operating 24 x 7.
- **Three satellites** of the constellation are placed in **geostationary orbit**. **Four satellites** are placed in **inclined geosynchronous orbit.**
- It covers the whole of India and up to 1,500 km from its boundaries.

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personal trackers that use low-power, single-frequency chips.

About GPS signals

- The actual frequency used in a satellite is 10.22999999543 MHz.
- The frequencies are based on this **fundamental frequency of 10.23 MHz:**
  - L1 = 154 X 10.23 = 1575.42 MHz
  - L2 = 120 X 10.23 = 1227.60 MHz
  - L5 = 115 X 10.23 = 1176.45 MHz
- The L1 signal is the **oldest GPS signal**. It has two parts: the **Coarse/Acquisition Code (C/A)** and the **Precision Code (P-code).** The P-code is reserved for military use, while the C/A is open to the public.
- Because its frequency is relatively slow it is **not very effective at travelling through obstacles.**
- The **L2 frequency is faster than L1**. It can travel through obstacles such as cloud cover, trees, and buildings.
- NavIC offers two services.These two services are provided in both **L5 (1176.45 MHz) and S band (2498.028 MHz).**
  - **Standard Position Service (SPS)** for civilian users.
  - **Restricted Service (RS)** for strategic users.
- NavIC SPS signals are **interoperable with the other global navigation satellite system** (GNSS) signals namely GPS,Glonass,Galileo, and BeiDou.
- ISRO plans to set up **ground stations in Japan and France** to better triangulate the entire area under NavIC coverage.
- With this, the system is likely to become more accurate than GPS.

Application of NaVIC

- NavIC finds utilisation in **national projects** like public vehicle safety, power grid synchronisation, real-time train information system and fishermen safety.
- Other upcoming initiatives (such as) **common alert protocol-based emergency warning**, time dissemination, geodetic network and unmanned aerial vehicles are in the process of adopting the NavIC system.
- The NavIC-enabled chipsets first made their way to cell phones in **2019.**

News in Between the Lines

Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY)

❖ Context

➢ Recently, **Minister of State for Tribal Affairs** informed the Lok Sabha that Ministry of Tribal Affairs has revamped the existing Scheme of **'Special Central Assistance to Tribal Sub-Scheme (SCA to TSS)** with nomenclature '**Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY)',** for implementation during 2021-22 to 2025-26.

❖ About PMAAGY

➢ **Nodal Ministry**
  - Ministry of Tribal Affairs.

➢ **Aims**
  - **Transform villages** with significant tribal population into model villages (Adarsh Gram)covering about population of 4.22 crore (About 40% of the total Tribal Population).
  - **Cover 36,428 villages having at least 50% tribal population** and 500 STs across States / UTs with notified STs.

➢ The main objective of this scheme is to **achieve integrated socio-economic development** of selected villages **through convergence approach.**

➢ **It includes the following components-**
  - Preparing Village Development Plan based on the needs, potential, and aspirations.
  - Maximizing the coverage of individual / family benefit schemes of the Central / State Governments.
  - Improving the infrastructure in vital sectors like health, education, connectivity and livelihood.

➢ **Funding**

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- A sum of ₹20.38 lakh per village as 'Gap-filling' has been provisioned for approved activities including administrative expenses under PMAAGY.

➢ **Role of States/UTs**

- States / UTs are encouraged for **convergence of resources as Central / State Scheduled Tribe Component (STC) funds** and other financial resources available with them for saturation of gaps in the villages identified under PMAAGY.

IND-INDO CORPAT Exercise

❖ Context

➢ The 39th edition of **India-Indonesia Coordinated Patrol (IND-INDO CORPAT**) between the Indian Navy and the Indonesian Navy is being **conducted from 08 – 19 December 2022.**

❖ Key Highlights

➢ The **39th edition** of IND-INDO CORPAT seeks to bolster the maritime cooperation between the two navies and forge strong bonds of friendship between India and Indonesia.

➢ India and Indonesia have been carrying out **CORPATs twice a year since 2002.**

➢ **Aim**

- To keep this vital part of the **Indian Ocean Region (IOR) safe and secure for commercial shipping, international trade** and conduct of legitimate maritime activities.

➢ **Significance**

- CORPATs help build understanding and interoperability between navies.
- It facilitates institution of measures to prevent and suppress Illegal Unreported Unregulated (IUU) fishing, drug trafficking, maritime terrorism, armed robbery and piracy.
- It further helps enhance the operational synergy by exchange of information for prevention of smuggling, illegal immigration and for conduct of Search and Rescue (SAR) operations at sea.

Meitei Script

❖ Context

➢ Newspapers in Manipur will have to replace the Bengali script that's currently in use with Meitei Mayek or the Manipuri script.

❖ Key Highlights

➢ Meetei-Mayek is the script which was **used to write Meeteilon (Manipuri) till the 18th century.**

➢ **Origin**

- Meetei Mayek experts and authorities say the script dates back as early as **3900 years ago**.

➢ **Decline**

- The script was lost to the speakers of the language when Shantidas Gosai, a Hindu missionary, spread Vaishnavism in the region in 1709, during the reign of **Pamheiba**.
- The King, who assumed the name Garib Nawaz, **decreed its replacement with that of Bengali.**
- Subsequently, Bengali script was adopted to write the language and is being used till date.
- The Manipuri language was **included** in the **Eighth Schedule of the Constitution in 1992 but in Bengali script.**

➢ **Revival**

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- In the 20th century, the script has experienced a resurgence, and is again being used.
- Starting from the year 2021, Meitei script was officially used by the Government of Manipur, along with the Bengali script, to write the Meitei language, as per "**The Manipur Official Language (Amendment) Act, 2021".**
- Manipuri written in Meitei Mayek was introduced in schools; now it is taught even at the university level by replacing Bengali script.

ASEAN Five Point Consensus

❖ Context

➢ The Indonesian Foreign Minister has urged India and other countries to follow the ASEAN five point consensus.

❖ Key Highlights

➢ It was the ASEAN's peace plan in respect of Myanmar, agreed to in **April, 2021.**

➢ The five steps the regime agreed to with the ASEAN leaders are:

- An immediate end to violence in the country.
- Dialogue among all parties concerned.
- The appointment of a special envoy.
- Provision of humanitarian assistance by ASEAN.
- A visit by the bloc's special envoy to Myanmar to meet with all parties.

➢ Earlier in the year, ASEAN members and the U.S. had also conveyed their concerns to New Delhi and Colombo about their invitation to the Myanmar Foreign Minister for the Bay of Bengal Initiative for Multi-Sectoral Technical & Economic Cooperation (BIMSTEC) virtual summit.

➢ Indonesia has just assumed chairmanship of the ASEAN grouping as well.

Lisu wren babbler

❖ Context

➢ Birdwatchers have discovered a new species of the elusive **wren babblers** in remote northeastern Arunachal Pradesh.

❖ Key Highlights

➢ The team had sighted the new species in March this year at **Mugaphi peak in Changlang district.**

➢ There has been only one report of the sighting of the wren babbler in India way back in 1988 in the same mountain.

➢ As described by the team, the birds had a sweet song that was similar to the songs of the Naga wren babbler and quite unlike the trilling song of the grey-bellied wren babbler.

➢ The bird had a **whitish belly** unlike the ground colour of the belly of the grey-bellied wren babbler.

❖ About Grey-bellied Wren Babbler

➢ Its scientific name is ***Spelaeornis reptatus***.

➢ It is found in China (Yunnan), India (Arunachal Pradesh), Myanmar, and Thailand. Its natural habitat is **subtropical moist montane forest**.

➢ It is classified as a Species of **Least Concern** by the IUCN.

❖ Context

➢ The United Nations-Water Summit on Groundwater 2022 concluded recently in **Paris, France** at UNESCO headquarters.

❖ Key highlights

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United Nations-Water Summit on Groundwater 2022

- The conference was organised by **UN-Water, UNESCO and the International Groundwater Resources Assessment Centre.**
- The summit was organised to raise awareness on groundwater conservation at the global stage.
- It also marked the completion of the **"Groundwater: Making the invisible visible"** campaign run by UN-Water throughout 2022.
- The event saw the formation of a **coalition on transboundary water cooperation.**
- **Transboundary waters** are the aquifers and lake and river basins shared by two or more countries. They accounted for **60 percent of the freshwater** that flowed globally.
- In an era of increasing water stress, mismanaged transboundary water supplies have the potential to cause social unrest and spark conflict.
- **Only 32 countries have 90 per cent or more of their transboundary basin and aquifer area covered by operational agreements.**

❖ Dire Situation in South Asia

- South Asia hosts not more than **five percent of the global land cover.**
- But it hosts more than a **third of the irrigated land** and more than a **fourth of the global population.**
- About 85 percent of the water required for irrigation to produce food and 90 percent of drinking water is drawn from groundwater in south Asia.

Just Transition Initiative

❖ Context

- **Kenya and South Africa** have announced an initiative, recently, to end plastic pollution.

❖ Key Highlights

- It was launched in the aftermath of negotiations on a global treaty to end plastic pollution. The first Session of the **Intergovernmental Negotiating Committee (INC**) to phase out plastic was held in Uruguay from November 28 to December 2, 2022.
- A just transition, according to waste pickers, is based on **making visible those already working at all stages of the plastic value chain**, including workers under informal and cooperative settings and recognising their fundamental human dignity and historic contribution.
- It aims to create **decent work opportunities** for waste-pickers and other workers in the plastic value chain.
- A submission on modalities informed by the Just Transition Initiative will be developed in consultation with the IAW.
- **International Alliance of Waste Pickers (IAW)** is a networking process that connects and supports thousands of waste picker organisations in over 28 countries.
- It was also trained using **"Reinforcement Learning from Human Feedback (RLHF)**.
- OpenAI is a non-profit AI research company whose DALL-E AI can generate images from text description.

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