

# POWERING DIGITAL INDIA

TATA COMMUNICATIONS  
CLOUD SERVICES



## **Introducing the MeitY panel member for cloud services**

Tata Communications is now empanelled by India's Ministry of Electronics and Information Technology (MeitY)

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# 1.0 Introduction

## Building a digitally empowered India

Nations throughout the world are undergoing an inevitable digital transformation – and India is no exception. The country's internet user base grew from just over 200 million in 2014 to reach 500+ million by 2017<sup>1</sup>. India has the world's largest biometric-based digital identity system: Aadhaar. A staggering 30 million<sup>2</sup> e-governance transactions are being recorded every day. All this has been made possible by the ground-breaking Digital India initiative.

**Digital India envisions creating high-speed digital highways, ushering in a new era for banking and the creation of a transparent system to support e-governance, digital signatures, digital-friendly entrepreneurship and more – all in a bid to enable inclusive growth.**

To enable successful execution of such projects, the Government needs to create user-friendly applications that not only store huge volumes of data but are also readily accessible to the public. This is a challenge that can only be met through the implementation of cloud technologies.

To build the vital framework needed for this transformation journey, the Ministry of Electronics and Information Technology (MeitY) has empanelled Cloud Service Providers (CSPs) for Digital India initiatives based on strict criteria.

Tata Communications is proud to have been chosen for the CSP panel, having successfully completed the Standardisation Testing and Quality Certification (STQC) and MeitY audit for providing cloud services to the Government of India.

## Why this whitepaper?

In this whitepaper, we explain the Digital India vision and how cloud is a key component for enabling its objectives. We also dive into the key challenges and concerns of Government organisations considering the move to cloud, explore MeitY criteria for empanelling Cloud Service Providers (CSPs), and discuss how cloud is an enabler for diverse Government organisations across industries.

# 2.0 The Digital India continuum

## How cloud enables the Digital India strategy

The Digital India programme is focused on digital inclusion throughout the country, as well as empowering its citizens by providing access for all to the knowledge economy.

The programme’s three key strategic objectives are to:

**Support the Government to enable infrastructure** through devices, systems, applications and data that is smart, secure and cost-sensitive

**Make Government services and data available** to facilitate innovation and open up opportunities for the general public.

**Digitally empower India’s citizens** with data and information across all Government departments, while making everything accessible online anytime, anywhere, on any device.

### Initiatives

 e-Sign	 Wi-Fi hotspots
 JAM	 Smart cities
 Skill India	 PMJDY
 DBT	 BharatNet
 e-Hospital	 DigiLocker

### Vision areas

 Infrastructure as a utility to every citizen	 Governance and services on demand	 Digital empowerment of citizens
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### Pillars

 IT for jobs	 Access to mobile	 e-Kranti
 PIAP	 e-Governance	 Information for all
 Early harvest prog.	 Broadband highway	 Electronics mfg.

Digital India has attracted the attention of investors and technology leaders worldwide. In fact, the project received US\$7.4 billion<sup>3</sup> of investments in only nine months during 2017. It is expected that the Digital India plan could boost GDP up to US\$1 trillion by 2025.<sup>4</sup> Even during the programme's early phases, the changes have been significant, and as more resources and funding pour in, India's transformation into a digitally-empowered nation gets ever-closer.

**US\$7.4 billion<sup>3</sup>**  
INVESTMENTS IN ONLY 9 MONTHS  
DURING 2017

**US\$1 trillion<sup>4</sup>**  
DIGITAL INDIA PLAN COULD  
BOOST GDP BY 2026

## Cloud: a success enabler for Digital India

**Cloud has played a crucial role in ideating, planning and implementing the Digital India initiative.**

Thanks to cloud computing, there has been a considerable acceleration in the development and rollout of e-governance applications such as DigiLocker. This is a cloud service which allows citizens to use a shareable cloud space to upload, store and share documents. DigiLocker is also being linked to governmental departments to enable users to access documents in a digital format. For example, the integration of DigiLocker with the Department of Transport enables users to download a digitally-verified copy of their driving licence.

To realise this vision and to establish the envisaged cloud computing platform, a well-defined cloud-adoption strategy and roadmap was critical.



## 3.0 Government of India Cloud

### Overview, challenges and considerations

The Government of India recognises the importance of cloud technology to enable the seamless delivery of services to citizens and achieve integration between various departments.

Cloud computing enhances agility to customise and deploy Information and Communication Technology (ICT) solutions to meet specific governance and business needs, while also improving efficiency. This approach has now given birth to the Government of India Cloud (GI Cloud) known as 'Meghraj'.

The GI Cloud's focus is to accelerate delivery of e-services throughout the country while optimising the Government's technology spend. Meghraj already hosts more than 500 applications <sup>5</sup> such as Aadhaar, eSign, eVisa and more.

Meghraj is being further strengthened through the creation of discrete cloud-computing environments at 'national cloud' and 'state clouds' levels.

There are several compelling benefits for GI Cloud adoption: scalability, agility, security, accessibility and cost reduction.



## What are the challenges moving to cloud

While significant progress has been made in cloud technologies, several hurdles to large-scale adoption still exist:



## Key considerations for GI Cloud adoption

It's important for Government organisations to understand the associated risks before moving their applications and data to the cloud. That way they can craft a clear migration strategy that:



**Since Government organisations handle a massive amount of sensitive public data, there is a need for definitive guidelines and policies regarding GI Cloud and its adoption.**

MeitY is the key national agency for information technology-related policies and guidelines for all public sector, Government-funded and controlled organisations, plus state and local bodies in India. The agency's guidelines can also be adopted by private-sector organisations in regulated industries and by other sectoral regulators as key criteria for the use of cloud services in India.

# 4.0 MeitY panel criteria

## How CSPs are empanelled

**MeitY has announced its Meghraj policy to provide strategic direction for Government adoption of cloud services.**

The policy’s aim is to map stringent criteria to empanel CSPs to ensure total protection and security for the large volumes of sensitive data generated by Government initiatives such as Aadhaar, DigiLocker, Government e-Marketplace etc.

### Synopsis of criteria

#### 2. Audit and reporting

To ensure prescribed audit procedures certified by STQC and MeitY

#### 4. Performance management

Availability, auto-scaling and performance guarantees as per SLAs

#### 6. Disaster recovery

Robust business continuity and Disaster Recovery (DR) plan



#### 1. Information security

Complete data security and privacy, certification and compliance accreditation such as ISO 27001, ISO/IEC 27017:2015 and PCI DSS to ensure the safety of sensitive data

#### 3. Managed transition or exit

Based on a complete exit management plan and knowledge transfer mechanism

#### 5. Service management and provisioning

Self-service portal to monitor performance, manage parameters, raise service tickets and run reports

#### 7. Network compliance

Secure and redundant Network, IPv6 compliant

## 5.0 Cloud as an enabler

### Transforming Government organisations

Cloud computing is transforming businesses across industries by delivering unabated cost benefits and innovation. While the private sector is building on cloud computing's myriad benefits, Government organisations have also aggressively begun to capitalise on them. Cloud adoption is impacting Government-owned banks, healthcare services, telecom companies and Government IT consultants in the following ways:

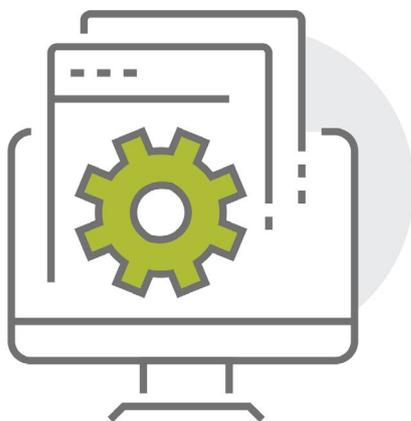


#### Telecom

The data protection norms in the telecom sector oblige Telecom Service Providers (TSPs) to safeguard the privacy and confidentiality of customer information.

It is also each TSP's responsibility to maintain all commercial and call records for at least one year for scrutiny by the Department of Telecommunications.

MeitY-empanelled CSPs are ideally suited to host and store this form of sensitive and critical data, since their cloud infrastructure has passed stringent data protection requirements regarding the safeguarding of data and adherence to strict data storage norms.



#### Government IT solution providers

The Government of India is progressively building digital applications and solutions. To ensure their scalability, agility and cost-effectiveness, it has mandated IT solution providers working on its applications to make their solutions cloud-ready.

These applications are hosted by MeitY-empanelled CSPs to ensure they are always on a secure and redundant network, protected from vulnerability and ready to meet any sudden data spikes. Robust DR response and guaranteed SLAs mean citizens enjoy uninterrupted access and maximum benefits from these applications.



## Banking

Banks are racing to take advantage of the opportunities and manage risks that the digital economy creates. To do so, they will need cloud computing platforms that provide greater agility and flexibility at lower cost.

However, banks handle sensitive and personal data - and their migration to the cloud poses major challenges due to data security, data privacy and regulatory compliance. The banking industry, therefore, needs to partner with a CSP that can address these challenges.

MeitY-empowered CSPs provide banks with added security, robust disaster recovery (DR) and adherence to regulatory and compliance requirements such as:

- ISO 27001 — a standard for keeping information assets secure
- ISO/IEC 27017:2015 — the code of practice for information security controls
- PCI DSS — a compliant technology infrastructure for storing, processing and transmitting credit card information in the cloud.



## Healthcare

With the Government of India announcing the world's largest national health protection scheme covering over 100 million<sup>6</sup> poor and vulnerable families, the healthcare sector is going to see phenomenal growth.

This sector is governed by legal data protection frameworks that mandate storing sensitive health information as electronic health records.

The MeitY criteria for CSPs ensure the secure storage of electronic data for Government healthcare organisations. Well-defined DR norms ensure failsafe access to records in emergencies. CSPs are required to implement safeguards across various levels, which include protective technology such as encryption, authentication and audit logs.

## 6.0 Tata Communications Cloud Services

### How we meet the MeitY criteria

Tata Communications is now a MeitY-empanelled CSP that meets pre-defined government standards of quality, availability and security. It means the company can deliver cloud services to central, state and local governments, as well as public sector bodies in India.

For Government organisations to move to the cloud, they need a trusted partner that can address their specific needs and provide a secure cloud solution. To ensure that Tata Communications' cloud offering meets all business requirements, it has been built to be converged, managed and secure.

#### Managed

Benefit from a process-driven approach for Managed Services – delivered by our 300+ cloud specialists – ensuring complete control of your infrastructure.



#### Converged

Our portfolio of Managed Hosting, Private Cloud and Cloud Storage services seamlessly hosts enterprise workloads. In addition, our Containers and Big Data offering ensures your business can accelerate productivity through data-driven insights.

#### Secure

As the only provider with Multi-Tier Cloud Security Level 3 certification in the Gartner Magic Quadrant for Managed Hybrid Cloud Hosting, Asia/Pacific 2017, we're committed to provide the highest standards of cloud security for our customers.

Government organisations can now take advantage of the best-in-class cloud technology from Tata Communications to drive transformation, and deliver highly innovative services to citizens at lower cost through programmes such as Digital India Skill India and Smart cities.

# Tata Communications' Government Community Cloud

At Tata Communications we look to strengthen our engagement with the Government and its public sector undertakings. So to enable this we are creating a dedicated Government Community Cloud (GCC).

As a MeitY-empanelled service provider, our cloud services meet all the MeitY criteria to provide secure and efficient digital solutions.

## 1. Information security

### a. Essential certifications and compliances

Tata Communications' Government Community Cloud (GCC) is built to adhere to stringent mandatory requirements and essential compliances such as

- ISO 27001 — a standard to keep information assets secure
- ISO/IEC 27017:2015 — a code of practice for information security controls
- ISO 27018 — a code of practice for protection of personally identifiable information (PII) in public clouds
- ISO 20000-9 — guidance on the application of ISO/IEC 20000-1 to cloud services
- PCI DSS — compliant technology infrastructure for storing, processing and transmitting credit card information in the cloud
- **The Global Service Management Centre (GSMC)** provides NOC & SOC services compliant with ISO 27001:2013 and ISO 20000-1:2011

Tier-III compliant and ISO 27001:2013-certified data centres

### b. Data privacy and security safeguards

The Government is privy to extremely sensitive and valuable data. We adhere to comprehensive data safeguards relating to:

- |   |  |
|---|--|
|  <p><b>1. Data classification</b><br/>Criticality-based</p>                    |  <p><b>6. Data sovereignty</b><br/>All GCC data is hosted in India</p>                                    |
|  <p><b>2. Data ownership</b></p>   |  <p><b>7. Data retention</b><br/>Based on legal and customer requirements</p>                             |
|  <p><b>3. Data isolation</b><br/>Based on ownership at rest and in transit</p> |  <p><b>8. Data disposal</b><br/>Based on strict criteria</p>  |
|  <p><b>4. Data backup and restoration</b><br/>On demand</p>                    |  <p><b>9. Data confidentiality</b><br/>Strict non-disclosure agreements protect sensitive information</p> |
|  <p><b>5. Data integrity</b><br/>At rest and in transit</p>                    |  <p><b>10. Data e-discovery</b><br/>Ready data availability to fulfil legal requirements</p>              |

## 2. Audit and reporting

Our GCC offering is fully compliant with the STQC and MeitY audit requirements. We also fully meet compliance standards such as ISO 27001, ISO 27018 etc.

## 3. Managed transition or exit for business continuity

We understand the requirements of customers migrating to other service providers and extend complete provisioning/de-provisioning support and handholding until the customer is settled in with their new provider.

Our experience in seamless migration of virtual machines, data, content and other assets will ensure the successful deployment and running of the Government department's solution on the new infrastructure.

## 4. Performance management



**Auto-scalable** — The GCC auto-scales to accommodate any unplanned data surge in real time.



**Scalable and redundant** — To manage huge amounts of data flowing through the GCC.



**Fully-managed** — Tata Communications' complete support extends to:

- Hardware resource monitoring and upgrading
- Operating system hardening and patch management
- Customer alerts in the event of deviations.

## 5. Service management and provisioning requirement

**The GCC allows customers to provision independently for**

- Virtual machines' (VM) configuration and operating systems
- Services via Application Programming Interface
- Defining virtual firewall rules and giving users remote access.

**Our self-service portal gives our customers the flexibility to**

- Monitor real-time performance, manage thresholds and view historical data
- Run service level reports
- Check outage records, causes and corrective actions taken
- Raise tickets and track progress.

## 6. Disaster Recovery (DR)

Tata Communications has set up the GCC with its Primary Data Centre and DR sites located in different seismic zones to ensure full operational continuity of critical government departments in the event of a Primary Data Centre failure.

Our data centres are Tier-III compliant and ISO 27001:2013 certified. They are also assessed for SSAE 18/ ISAE 3402 standards.

We have also provisioned for the required Recovery Point Objective (RPO) and Recovery Time Objective (RTO).

## 7. Network compliance

Tata Communications' network infrastructure is IPV6-compliant and fully adheres to controls specified by CERT-In, the national nodal agency for computer security incidents. Our network can scale bandwidth on demand along with secure private connectivity between customer data centres. Should it be needed, we have the flexibility to work with other ISPs to provide complete redundancy for the customer's network. We also provision customer networks with virtual firewalls for added security.

## 7.0 The Government e-Marketplace

### Case study: secure e-commerce platform



With **16,470** buyer organisations, **44,874** sellers and **474,804** products and orders worth US\$725 million,<sup>7</sup> the Government e-Marketplace (GEM) is one of the largest e-commerce platforms in India. Envisioned as India's national procurement portal, its main objective is to facilitate the procurement of commonly-used goods and services for Government departments, organisations and public sector undertakings (PSUs).

GEM features tools to enable e-bidding, reverse e-auction and demand aggregation, which will facilitate Government users to achieve the best value for their money.

The Government e-Marketplace is hosted on Tata Communications' Government Community Cloud that includes operations, business continuity services and security services – all adhering to MeitY guidelines and controls.

The solution promotes transparency and eliminates opportunities for corruption, also enabling small and micro-enterprises to sell directly to the Government. In addition, Tata Communications is partnering on various Smart city projects – an integral part of the Digital India initiative.

## 8.0 A future-ready cloud platform

Enabling your digital future



During our entire 150-year existence, we at Tata Group have always been deeply committed to improving the quality of life in the communities we serve. The Tata Group is one of the leading protagonists in India's industrial growth story across diverse sectors such as automotive, manufacturing, financial services and technology.

At Tata Communications, we understand and appreciate the nuances around digital transformation, having worked with

thousands of global customers on their digitisation journeys. We're honoured to be able to play a pivotal role in the co-creation of critical Government e-initiatives such as the Government E-Marketplace (GEM) and Smart Cities.

Our Government Community Cloud is designed to offer a secure and comprehensive cloud platform that meets all your business needs - preparing and enabling your digital future.

## Sources

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