Gilgit Baltistan Cloud First Policy 2024

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1   Definitions

1.1 Cloud Computing

Cloud computing is a model for enabling convenient and on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

1.2 Cloud Service Provider (CSP)

A Cloud Service Provider (CSP) is a third-party company that offers components of cloud computing such as infrastructure, software, storage, application, etc.

1.3 Public Sector Entities (PSE)

The Government of Gilgit-Baltistan including all its Departments, Statutory bodies, Agencies, Companies, Institutions and Corporations fully or partially owned by the Government of Gilgit-Baltistan.

1.4 Government data

Data collected, generated, processed and/or managed by Public Sector Entities.

1.5 Interoperability

The ability of computer systems, platforms, software, databases or different computerized products or systems or their components to exchange and use information seamlessly between each other.

1.6 New ICT Investment

The procurement of new ICT hardware and software as well as renewal of hardware and renewal of software licenses.

1.7 Open Data

Publicly available data structured in a way that the data is fully discoverable and usable by end users is called 'open data'.

1.8 Service Level Agreement (SLA)

An agreement between a customer and a service provider that lists the services required and the expected level/quality/grade of service.

Abbreviations

BVN	Bank Verification Number
CAO	Cloud Acquisition Office
CSP	Cloud Service Provider
GB	Gilgit-Baltistan
GoGB	Government of Gilgit-Baltistan
GOP	Government of Pakistan
IaaS	Infrastructure as a Service
ICT	Information and Communication Technology
IT	Information Technology
MoITT	Ministry of Information Technology and Telecommunication
PaaS	Platform as a Service
PCFP	Pakistan Cloud-First Policy
PII	Personally Identifiable Information
PPRA	Public Procurement Regulatory Authority
PSE	Public Sector Entity
SaaS	Software as a Service
SDG	Sustainable Development Goals
SLA	Service Level Agreement
TCO	Total Cost of Ownership

2   Introduction

The Cloud-First Policy for the government of Gilgit-Baltistan is designed to leverage the transformative potential of cloud computing to enhance public service delivery, improve operational efficiency, and foster transparency within government operations. By prioritizing cloud-based solutions, this policy aims to streamline data management across various government departments, enabling them to respond more effectively to the needs of citizens while reducing costs associated with traditional data centres. The initiative aligns with broader national objectives which seek to harness technology for improved governance and public engagement. Through the adoption of cloud services, the government of Gilgit-Baltistan will not only optimize resource allocation but also ensure compliance with security and privacy standards, thereby safeguarding sensitive information. This policy is a crucial step towards modernizing the public sector, promoting innovation, and facilitating a sustainable digital ecosystem that can adapt to the evolving demands of governance and public service.

3   Vision

Our vision is to transform public services through innovative cloud technologies, making them efficient, transparent, and secure.

4   Objectives

The objectives of the Gilgit-Baltistan Cloud-First Policy are as under:

4.1 Enhance Government Efficiency and Agility

The policy aims to improve efficiency and responsiveness by utilising cloud technology to streamline data access and sharing among government entities. This approach promotes smoother workflows and accelerates service delivery to citizens.

4.2 Decrease IT Infrastructure Costs

The cloud-first policy is designed to achieve substantial government cost reductions by eliminating the need to maintain and manage on-premises IT infrastructure.

4.3 Strengthen Scalability and Security of Government Data

By transitioning to the cloud, government entities can take advantage of the advanced security features and scalable storage solutions cloud service providers offer. This transition ensures robust data protection while accommodating varying government demands.

4.4 Improve Interdepartmental Collaboration

The cloud-first policy is designed to enhance collaboration among different government departments and agencies. Cloud-based platforms promote effective communication and information sharing, leading to a more integrated government structure.

5   Background

The government of Gilgit-Baltistan believes in the prospects for cloud computing to help drive digitalisation, modernise public service delivery, and foster economic growth. As the world becomes fast-paced toward realising the benefits of cloud technology, the ICT strategies of Gilgit-Baltistan remain synchronised with national priorities set out in the Pakistan Cloud-First Policy 2022. Cloud computing has broken through as a transformative technology to offer enormous benefits, such as cost savings, high scalability, flexibility, and better data security. The Cloud First approach is expected to streamline and optimise the use of ICT resources, reduce costs, and ensure the delivery of secure and reliable services to the citizens of Gilgit-Baltistan.

The policy of Cloud First for Gilgit-Baltistan is based on the national Cloud First Policy, which has played a vital role in adopting solutions based on cloud computing in Pakistan. This Gilgit-Baltistan policy will assist public sector entities to unlock the benefits of cloud computing towards effective digital transformation. Cloud solutions could be a significant advantage for Gilgit-Baltistan, which faces both geographical and connectivity challenges. The infrastructural and

resource scarcities of the region, along with its remote mountainous landscape, are often developed as hurdles in the efficient delivery of public services. It is a realistic solution to those challenges because it avails cost-effective information and communication technology infrastructure on a scale that otherwise remains beyond financial reach.

Furthermore, the Cloud First Policy fits well within the overarching vision of the government to convert Gilgit-Baltistan into a digital-first economy. Cloud-based technologies will help the region enhance competitiveness, attract investments, and open up new avenues for economic growth and development. This is an essential forward movement in the context of an ever more connected, effective, and technically enabled future for Gilgit-Baltistan.

6   Scope
This policy applies to all public sector entities in Gilgit-Baltistan, including, departments, agencies, corporations, and companies. It covers new ICT investments, existing infrastructure, data and application hosting, cloud service procurement, and capacity building. The policy encourages public sector entities to consider cloud-based solutions as the preferred option for new ICT investments to take advantage of cloud computing benefits.

7   Adoption Support
The Government of Gilgit-Baltistan advocates a "Cloud First" strategy for all emergent IT ventures and ongoing undertakings. Public Sector Entities (PSEs) are required to:

- Undertake a robust evaluation of their IT requirements before commencing new projects.
- Prioritise cloud-based solutions when available services meet functionality and security standards.
- Provide a cost-benefit analysis and a thorough explanation of security considerations for any decision that diverges from the Cloud-First approach.
- Formulate a cloud migration strategy for existing IT infrastructure and applications, taking into account data sensitivity, cost-effectiveness, and operational viability.

8   Cloud Deployment Models
8.1 Public Cloud
- Cloud infrastructure provisioned for open use by the general public.
- This cloud model may be owned, managed, and operated by a business, academic, or PSE, or some combination of them.
- It can be located anywhere. Resources of the cloud infrastructure can be shared by any number of organizations.

8.2 Government Cloud
- Cloud infrastructure provisioned for use by PSE only.
- It may be owned, managed, and operated by a business, academic, or PSE, or some combination of them.
- It can only be located in Pakistan. Resources of the cloud infrastructure can be shared by PSE only.

8.3 Private Cloud
- Cloud infrastructure provisioned for exclusive use by a single organisation/PSE.
- It is managed and operated by the organisation, a third party, or some combination of them.
- It can only be located in Pakistan either on-premise or off-premise of the organisation that owns it.

8.4 Hybrid Cloud
- A hybrid cloud is a solution that combines one or more referred cloud deployment models.

- It allows data and applications to be shared between the referred models. An organization can store its sensitive data on one type of cloud whereas public data on another, thus taking care of its security needs as well as leveraging the robust computational resources of a public cloud.

9   Coherent Cloud-First Approach

Gilgit-Baltistan will pursue a unified Cloud-First strategy by synchronising its policies with the national Cloud-First Policy. This alignment will facilitate a coordinated shift to cloud-based solutions across all governmental tiers. Some of the advantages are as follows:

a. Economies of scale
   With the aggregate demand for cloud computing throughout Pakistan, CSP will be able to achieve economies of scale. This will bring down the cost of ICT expenditure and attract investment.

b. Collaboration between provinces
   A coherent approach to cloud computing throughout the public sector of Pakistan will provide increased opportunities for collaboration among provinces on their ICT initiatives. Extension of already developed solutions deployed on the cloud can easily be replicated for other provinces.

c. Standardization
   The development of a cloud ecosystem with inherent interoperability capabilities will result in the adoption of standardized mechanisms for the development of citizen-centric solutions.

d. Adoption of the latest tools and technologies
   Cloud adoption across the country will facilitate the adoption of the latest tools and technologies for the implementation of ICT initiatives. The traditional approach to software development will be replaced by the latest cloud-native methodologies. This will also result in the development of a cloud-enabled workforce throughout Pakistan.

10   Policy Deliverables

10.1 Nomination of a Representative for the National Cloud Board

The Government of Gilgit-Baltistan will nominate a representative for the National Cloud Board as per the Pakistan Cloud-First Policy 2022.

10.2 Gilgit-Baltistan Cloud Acquisition Office

The Government of Gilgit-Baltistan will establish a "Gilgit-Baltistan Cloud Acquisition Office" to aid public sector entities in designing, procuring, and transitioning to cloud-based solutions. This office will collaborate closely with the National Cloud Acquisition Office to ensure uniformity and efficiency in the cloud adoption process. Key responsibilities will include:

1. Providing technical support and guidance
2. Developing procurement guidelines
3. Assisting in the selection of cloud services
4. Monitoring and evaluation
5. Conducting capacity building and training sessions
6. Coordinating with national initiatives

10.3 Restrictions on Fragmented ICT Infrastructure

The government will enforce restrictions on investments in fragmented ICT infrastructure and promote the transition to cloud-based solutions to achieve economies of scale, optimise resource utilisation, and bolster data security. Key elements include:

1. Prohibition of new investments in on-premises data centres and server rooms
2. Phased decommissioning of existing on-premises infrastructure
3. Processes for exceptions and approvals
4. Incentives to encourage Cloud Adoption
5. Oversight and enforcement by the Gilgit-Baltistan Cloud Acquisition Office

11 Security Framework

Cloud computing offers a superior security framework compared to traditional computing due to its shared responsibility model. In this model, both the Cloud Service Provider (CSP) and the client organisation collaborate to protect data, with the CSP managing the infrastructure's security and the client focusing on their applications. This partnership allows organisations to leverage the CSP's expertise, enhancing operational efficiency and reducing vulnerability.

Traditional computing, on the other hand, places the entire security burden on the organisation, requiring significant investments in physical and software protections. This self-reliance can create vulnerabilities, especially for those lacking adequate resources or expertise. By adopting cloud computing, organisations can mitigate these risks and strengthen their security posture.

Additionally, cloud computing provides unmatched scalability and flexibility, enabling organisations to quickly adapt to changing needs and threats. CSPs offer advanced security features, such as automated threat detection, which can be easily integrated. Traditional computing often involves cumbersome processes for scaling security, limiting agility and growth.

Finally, compliance is more manageable in cloud environments, as CSPs typically provide established certifications that simplify adherence to industry standards. This reduces the resource burden associated with compliance in traditional computing, where organisations must navigate complex regulations independently. Embracing cloud computing enhances security and fosters a safer digital environment for government entities.

12 Procurement

Procurement of cloud-based services is crucial for the Public Sector Entities (PSE). The PSE under the Gilgit-Baltistan Government must consider cloud services for all new ICT procurement decisions. Any decision to opt for non-cloud services requires approval from the Gilgit-Baltistan CAO. Additionally, hosting data on a private cloud or establishing a private cloud also necessitates approval from the Gilgit-Baltistan CAO.

Once this policy is approved, prioritizing cloud-based ICT in new procurement will be mandatory. This applies to infrastructure, hardware, software, information security, licensing, storage, and various services such as security, deployment, virtualization, and databases. Any decision not to use cloud solutions must be justified with a business case showing clear value. The PSE must demonstrate that non-cloud-based ICT offers a lower total cost of ownership (TCO) with at least the same security level as cloud deployment or meets specific requirements not offered by cloud solutions.

The choice of cloud deployment and service models will be based on a thorough assessment of each application, including a cost-benefit analysis to ensure value for money over the investment's lifespan. Procurement practices should ensure scalability, cost-effectiveness, and innovation. The Gilgit-Baltistan CAO will support PSEs in selecting the appropriate cloud service and deployment models, including architecting, procuring, building, migrating, and managing their workloads on the cloud. The CAO will also organize competitions or Call-offs to select accredited Cloud Service Providers (CSP).

When procuring cloud services, the following aspects will be considered:

   a) Value for money for the intended service purpose;
   b) Transition from capital budgets to operational expenditure;
   c) Financial, governance, and technological impact in the short, medium, and long term;
   d) Suitability of Service Level Agreements (SLAs) to PSE needs; and
   e) Compliance with data security guidelines, national legislation, and international standards on data privacy and cybersecurity.

Cloud services are typically provisioned on a "Pay as You Use" basis, eliminating the need for organizations to purchase equipment for ICT services, shifting from traditional capital expenditure to operational expenditure. This approach, aligned with the goals of PCFP, allows scalability and accommodates fluctuating data and computing needs.

After the approval of this policy, the Gilgit-Baltistan IT Department, in collaboration with the Gilgit-Baltistan Finance Department and the Gilgit-Baltistan Public Procurement Regulatory Authority (PPRA) and other relevant authorities, will develop mechanisms to transition from capital to operational expenditure, better suited for cloud service provisioning. The Gilgit-Baltistan CAO will provide guidance on this transition.

12.1 Centralised Procurement

Maximizing the benefits of cloud computing requires a centralized entity to facilitate cloud procurement for Public Sector Entities (PSE). This centralized approach delivers a range of advantages, including:

- Convenience and efficiency
- Reduced costs
- Streamlined ordering process

By aggregating demand for common cloud technologies, PSE can negotiate optimal offerings from Cloud Service Providers (CSP). Additionally, this approach standardizes terms and conditions across PSE, eliminating the need for individual agreements.

The Centralized Acquisition Office (CAO) will serve as the single point of contact for ICT procurements of all PSE, providing visibility into aggregate demand. This visibility enables CAO to secure better pricing and service offerings from CSP, further enhancing the value of cloud computing for PSE.

13   Migration between Cloud Service Providers

Public Sector Entities (PSEs) may choose to change or migrate between Cloud Service Providers (CSPs) for a variety of reasons, including cost efficiency, improved services, or enhanced security features. As PSEs embark on their initial migration to the cloud, this transition must be designed to facilitate future migrations between different platforms. This can be achieved by establishing clear technology standards within their procurement processes. By building their infrastructure using standardized and widely available components, PSEs can significantly ease the process of transferring data to the cloud and between various CSPs.

When planning for migration, PSEs should carefully consider the implications of transferring potentially large volumes of data, particularly when launching new services. It is essential to assess not only the immediate data transfer needs but also the capacity for scaling operations in the future if demand increases. This foresight will ensure that their cloud infrastructure remains adaptable and responsive to changing requirements.

To support PSEs in this journey, the CAO will provide guidance and recommendations on best practices for cloud adoption and migration strategies. The CAO will assist in developing models and rollout plans that PSEs can follow, ensuring that their transition to the cloud is smooth and

efficient. This collaborative approach will empower PSEs to make informed decisions as they navigate the complexities of cloud migration and optimise their use of CSPs.

14   Data Ownership

Public Sector Entities (PSEs) will maintain complete ownership of their data throughout its lifecycle. They will have the authority to determine how and where their data is stored and managed within cloud environments. Regardless of the ownership, management, or operation of the cloud infrastructure, any data stored in the cloud remains the exclusive property of the PSE. This ownership grants PSEs the unequivocal right to access, retrieve, modify, or delete their data, regardless of the physical location of the cloud service. Additionally, PSEs retain the authority to approve, deny, or revoke access to their data by any third parties, ensuring robust control over sensitive information.

As part of their cloud strategy, PSEs must carefully consider the processes for retrieving and transferring their data once the cloud service contract expires. It is essential that the Cloud Service Provider (CSP) clearly specifies the procedures for data transfer back to the PSE, including establishing a timeline for this process, which should be documented within the contract. Furthermore, PSEs must mandate that all copies of their data be deleted, overwritten, or otherwise rendered inaccessible upon the expiration or termination of the contract. This ensures that no residual data remains that could compromise security or privacy.

Moreover, CSPs are required to comply with the data protection regulations set forth by the Government of Pakistan (GOP). They must not possess the capability to access or monitor government data and content, thereby safeguarding the confidentiality, integrity, and availability of the information. This adherence to stringent data protection standards is vital for maintaining public trust and ensuring that sensitive government data is handled with the utmost care and security.
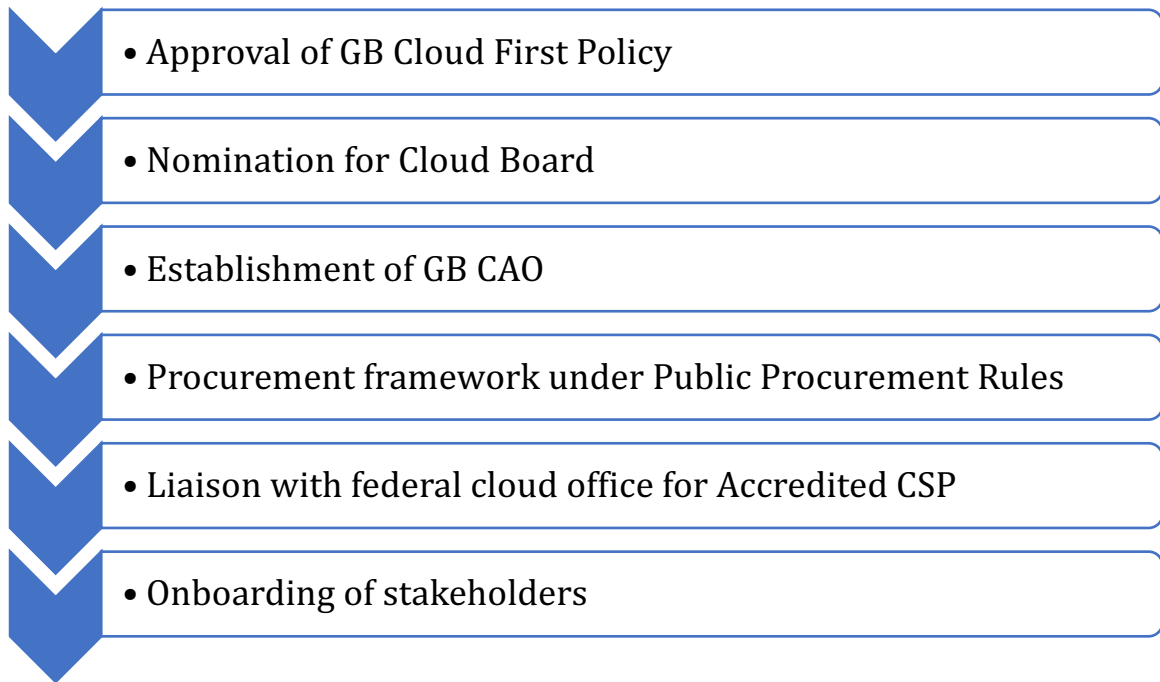
15   Date of Application and Validity

This policy will come into effect upon approval by the Gilgit-Baltistan government and remain valid until revised or replaced.

16   Conclusion

The Cloud-First Policy for Gilgit-Baltistan paves the way for a more efficient, cost-effective, and secure government IT landscape. By embracing cloud computing, the GoGB aims to enhance public service delivery, improve transparency, and empower its citizens through greater access to government services. This policy, coupled with a dedicated implementation framework, will ensure a smooth and successful transition to the cloud, propelling Gilgit-Baltistan towards a more digital and connected future.

Annex-I: Cloud Onboarding

- Approval of GB Cloud First Policy

- Nomination for Cloud Board

- Establishment of GB CAO

- Procurement framework under Public Procurement Rules

- Liaison with federal cloud office for Accredited CSP

- Onboarding of stakeholders