NATIONAL CLOUD SERVICES OF NIC

With the emergence of Cloud computing and its power to foster efficiency in Governance, there has been a paradigm shift in the setting up and management of ICT services in Indian Government. Through Cloud services, the provision of ICT infrastructure to various departments and organizations of the government can now be cost effective, agile, sustainable and rapidly deployable for quicker services delivery.

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Cloud computing has a large role in optimizing Data Centre resources. One of the major advantages is that the Departments of government need not have to pre-allocate extra infrastructure and resources for unforeseen requirements. There is now a flexibility to scale infrastructure resources based on current need. By this, the user departments need to bother less on resources allocation and focus more on strengthening application systems to deliver better services. The freedom to choose and avail the optimum ICT infrastructure resources strengthens user confidence and benefits cost efficiency.

NIC, being a frontrunner in facilitating e-Governance initiatives of the government, has setup a state-of-art and secured Government Cloud under the umbrella of MeghRaj. NIC Cloud Services spans over the latest ICT infrastructure built at the National Data Centres. Through the portal https://cloud.gov.in, the Cloud Services are now available for all ministries and departments of the Centre and States.

MEGHRAJ

To harness the advantages of Cloud Computing, Government of India has embarked on a highly significant and ambitious initiative called "GI Cloud". With a personalized name 'MeghRaj', this initiative is focused on activities, establishment of various components and mechanisms of governance to ensure successful implementation of Cloud in Government. One of the key objectives of GI Cloud is to ensure optimum allocation and utilization of infrastructure resources and enable
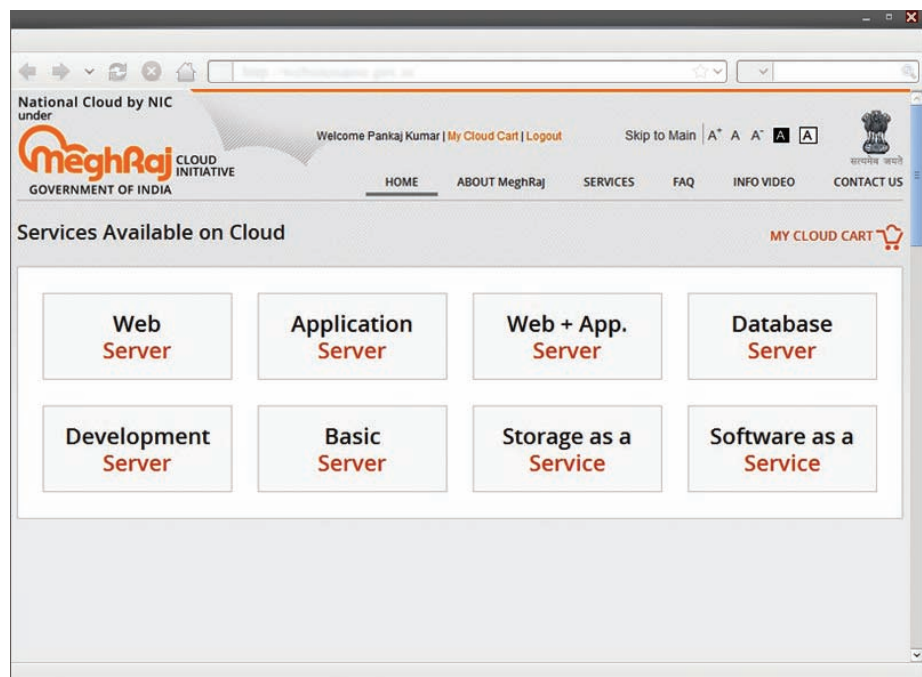
swift development and deployment of e-Governance applications.

NIC CLOUD SERVICE OFFERINGS

National Cloud is built using state-of-art technology and infrastructure, secured with efficient design with features such as generic architecture, usage simplicity apart from having various self-service portal components.

Currently, the Cloud Services offered are Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS) and Storage as a Service (STaaS).

Infrastructure as a Service (IaaS)

IaaS provides basic virtual compute infrastructure resources like CPU, Memory, Disk Storage attached to blank VMs allowing users to install OS, using ISOs, from scratch and customization. In this service, the users need to have legal licenses for OS and Application software as applicable.

Platform as a Service (PaaS)

PaaS provides pre-installed web and database servers so that users can publish and run webs application without botheration of server setup. The servers are pre configured and ready with basic security hardening. PaaS service can be availed for rapidly deploying servers so as to publish web applications by the users. The OS and Application Software licenses are provided by National Cloud (NC) as part of this service.

Software as a Service (SaaS)

SaaS provides on-demand software service. This is a software delivery model where the users need not be responsible for supporting the application or any components. The server infrastructure, OS and software are managed by cloud services. If the user owns a web application and legally eligible to distribute to other users, then delivery of SaaS can be made through Cloud Service.

Graphic representation of Multi-location Cloud

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NIC has remained at the forefront in introduction of information & communication technologies to the government. Launch of first National Cloud by NIC under MeghRaj initiative of the Government is an important milestone in the history of e-governance infrastructure in the country.

National Cloud of NIC, set up with state of art technology, is secure by design & generic in architecture. To cater to variety of ICT requirements of government, a three tier ICT infrastructure is put up under the National Cloud to provide appropriate services with optimal use infrastructure & associated resources. Cloud Services are packaged in line with the requirements of Government Departments making it easier for them to make the right choice.

Launch of National Cloud by NIC shall facilitate departments to avail infrastructure on demand and scale up their resources any time. They need not spend their time & energy on long cycles of procurement of ICT Infrastructure. They can now focus on development, implementation & rollout of e-governance applications. Cloud shall also help government in innovating & introducing new models of delivery of citizen services.

Cloud Resources Infrastructure - Architecture
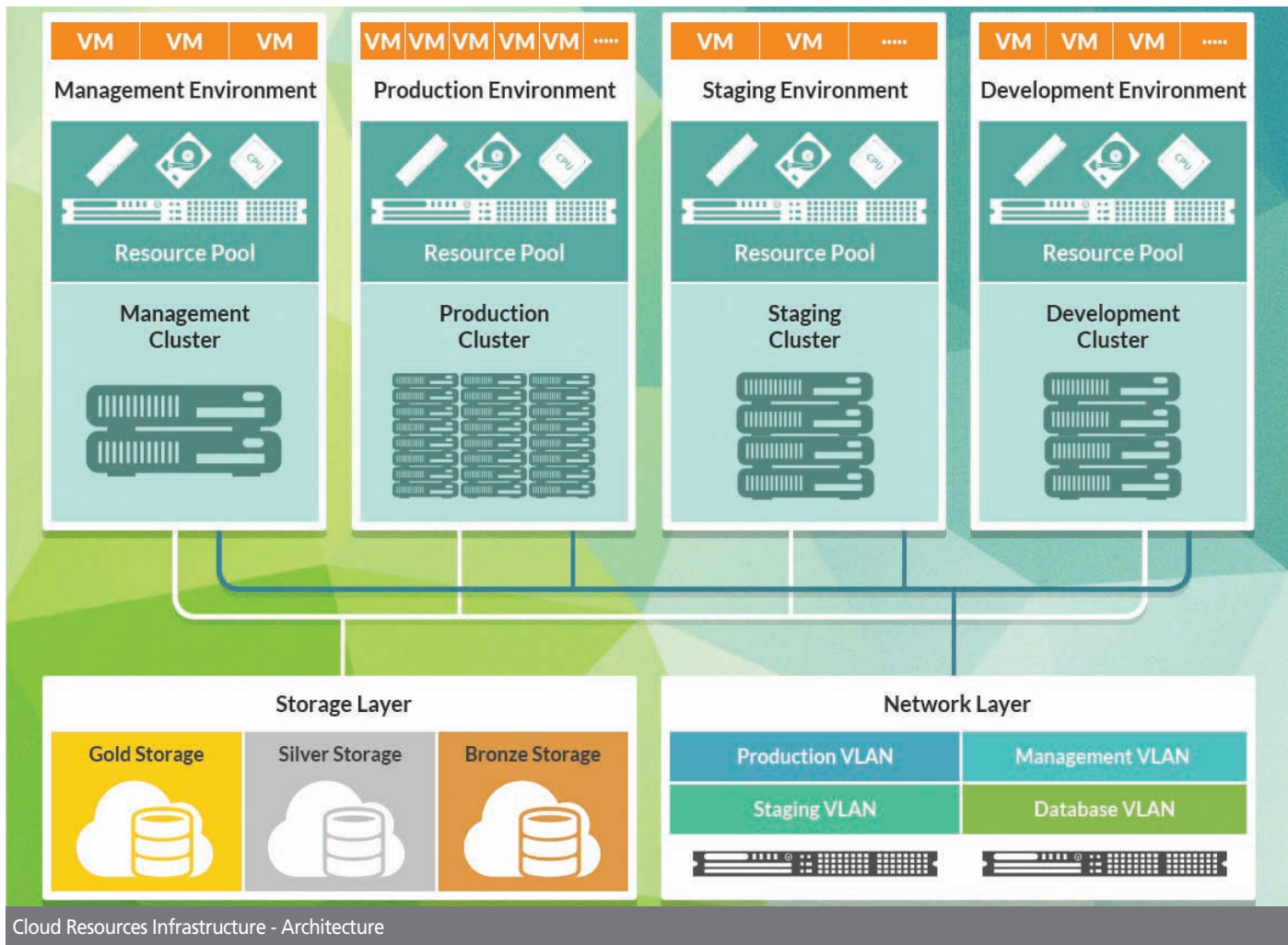
Storage as a Service (STaaS)

STaaS provides need-based storage solution. This service provides excellent alternative to the traditional on-site and dedicated storage systems thus reducing the complexities of deploying and managing multiple storage tiers. STaaS can be used to mitigate risks in disaster recovery, enable long-term retention for records and enhance both continuity and availability.

To keep it easy for the departments, Cloud Services (IaaS/PaaS) have been packaged into simple offerings. The catalogue of Cloud Service offerings provide options for the users to choose from preconfigured web, applications and database servers with Commercial/Open Source System Software or Blank Servers and Storage. Application Systems those are generic in nature for the use of multiple government organizations are offered under SaaS model.

SALIENT FEATURES

● Servers provided under PaaS service are preinstalled with software and hardened as per government security regulations. These are simple, ready to use machines and which are made to go live by installing application software.

● Designed in line with project life cycle of any e-gov project. Various phases of a project like development and testing stages requires different requirements of infrastructure in terms of security as well as network. Cloud has dedicated environments for the development, staging and production to meet these needs.

● Provides various models of tiered storage namely Gold, Silver and Bronze provides right type of storage for a particular application and thus optimizing cost and time involved.

● Provides a complete workflow system to assist and guide the user step-by-step for the activation of any e-gov application with accomplishment of various tasks such as Vulnerability Assessment (VA) of servers, Security Audit Status of any application, DNS entry etc.

- The Cloud provides framework to manage multiple projects by keeping the respective Cloud space separate along with allocation of certain resource quota.

- National Cloud is designed for multi-location Cloud. It has been set up completely at Data Centres in Delhi whereas in Hyderabad it is functional with certain limited capacity.

HOW TO AVAIL NIC CLOUD SERVICES?

Following are the procedures to avail the NIC Cloud Services:

- Visit the portal https://cloud.gov.in to apply and register for services.

- On successful registration, users will receive acknowledgement on their email.

- On satisfying eligibility conditions, users will receive a "Welcome Mail" for Sign up. Login for signup is allowed only with GoI email accounts.

- On successful signup, users will receive T&C document to their email account. Users are required to download this document and submit the duly signed and stamped document to NIC Cloud Team through their concerned NIC HODs/SIOs.

- Once document is received the Sign up process is complete, users can then request for variety of Cloud Services being offered by NIC.

In the operation process of Cloud Services, each department is required to nominate a Cloud Coordinator. The Cloud Coordinator is then required to enroll on the Cloud on behalf of the respective department and then place requisition for various services. These include choice of web-server, database server, blank server etc. Subsequently,

the Coordinator needs to comply with the first four steps mentioned above. Further, he will be provided with "My Cloud", which is a Cloud Dash Board over secured channel. The Cloud Coordinator has to set up all the required configurations. Using the Cloud Dash Board, maintenance operations can be carried out.

TECHNOLOGY & ROLL OUT

National Cloud (NC) is built using state-of-art-technology with a secure design, generic architecture and simple user interface through a self-service portal. While designing, it has been ensured of not having a single technology vendor at the back end to avoid any vendor-locking situation in future.

National Cloud has been designed to be a multi-location Cloud. National Data Centre (NDC) nodes at Delhi and Hyderabad locations have been already added in the first phase, whereas NDC Pune and upcoming NDC Bhubaneswar would be added subsequently. All these nodes are made accessible through the common Cloud Portal over a highly secure channel using VPN.

SUMMARY

National Cloud Services ensure that the departments need not provision ICT Infrastructure in advance. The facility of rapid elasticity is made available to the individual projects while the pooling of resources ensures optimal utilization and cost savings for the government.

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