

Proposal
for
Members of Apparel Export Promotion Council
(AEPC)
NSDLgst Services

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1. About NSDL e-Governance Infrastructure Ltd

NSDL e-Governance Infrastructure Limited (NSDL e-Governance) has been closely working with the Government of India as well as various State governments for providing and implementing e- Governance solutions across India. NSDL e-Governance established the first Central Securities Depository (CSD) in India in 1996 as per the Government's initiative to provide transparency, convenience and build investor confidence in the Indian Capital Market as also to reduce cost of transaction.



Our Capabilities & Expertise

Our practice is focused on delivering consulting / implementation services to clients in the areas like IT strategy development, e-Governance, IT Strategy, IT solution design, Business Process Reengineering, Preparation of Functional Requirements and Technical Requirement Specifications. NSDL e-Governance brings together the extensive experience of working with various Central and State Governments in India.

NSDL e-Gov Projects & Initiatives:

1. Depository System
2. Tax Information Network
3. Online Tax Accounting System
4. Pan Card Issuance
5. Electronic Accounting System in Excise and Service Tax (EASIEST)
6. Central Recordkeeping Agency for National Pension System
7. Aadhar Issuance
8. Aadhar Authentication / E-KYC Services
9. National Judicial Reference System
10. Education Funding Aggregation Portal (Vidya Lakshmi)
11. Hosting services for Election Commission of India
12. Succession Planning Services
13. Data Center Co-location
14. E-Sign – Online Digital Signature Service
15. GST Pilot

NSDL e-Governance has made use of the latest technology & tools and business process re-engineering for developing and implementing solutions for all the aforesaid projects which has transformed policy making, enhanced transparency, reduced costs, strengthened the administrative & legal infrastructure and facilitated change management for the Government.

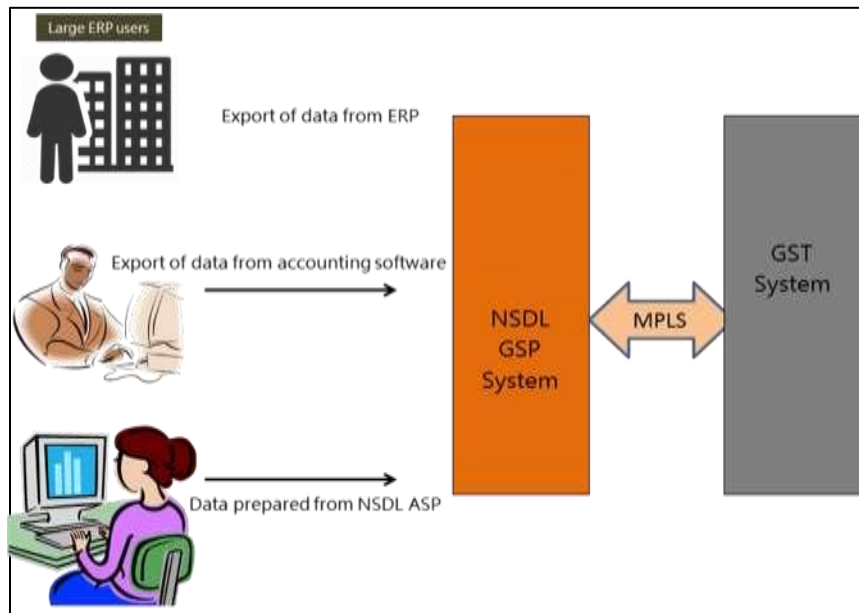
2. Goods and Services Tax

Goods and Services Tax (GST), a major tax reform in indirect taxes is expected to be implemented from July 1, 2017. The Government has set up a company viz; **Goods and Services Tax Network (GSTN)** to oversee and facilitate the implementation of GST in the country. GSTN is setting up the IT backbone which will act as an interface between the Tax payers and the Central / State tax administrations. The said interface will be API based and GSTN has appointed GST Suvidha Provider (GSP) to facilitate Tax payers to comply under GST. NSDL e-Governance Infrastructure Limited (NSDL e-Gov) is GSTN approved GST Suvidha Provider (GSP).

Further, **NSDL e-Gov was appointed to set up GST Pilot in 2011 by Govt of India**. The objective of the Pilot was to validate the concept of a common portal which will interface between the Tax payer and the Central / State tax administrations for Registration, Filing GST returns and payment of GST and to estimate the efforts required by Center and States / UTs to become GST ready.

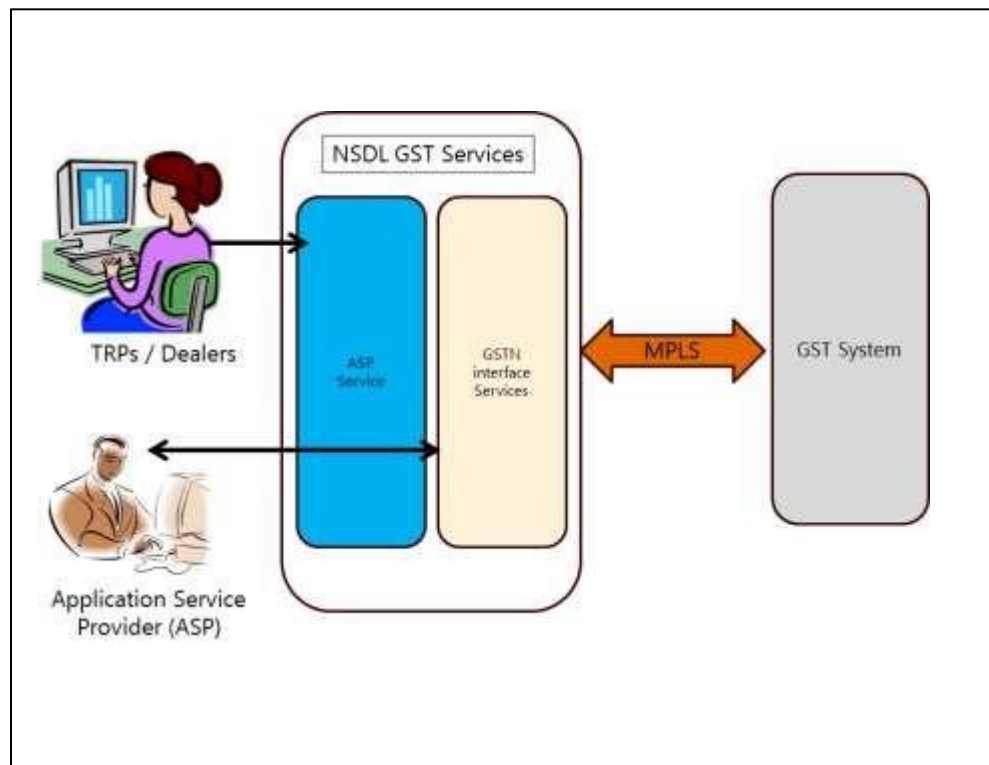
In the evolving scenario of the new GST regime, it is envisioned that the GST Suvidha Providers will play a very important and strategic role. GSTN has mandated GSPs to provide API interface to Tax payers. NSDL e-Gov would be providing both the services, viz; GSP as well as Application Serviced Provider (ASP) for facilitating GST compliance. An interface will be provided to upload / download APIs in the format prescribed by GSTN and provide a platform for GST compliance. NSDL e-Gov ASP would facilitate acceptance of data in various formats, convert it to the required formats as desired by GSTN and pass on the same to GSTN.

GSTN has adopted a platform approach for providing services to dealers. GST functionalities that includes but not limited “Uploading of Invoices”, “Filing of Returns” are available through APIs. GSTN receives APIs calls through GST Suvidha Providers (GSP). Majority of the dealers will have to interface with GSTN through GSPs. Dealers will have to rely on an application to generate APIs calls and interface through GSPs as shown in GSTN workflow below.



NSDL e-Governance Infrastructure Limited (NSDL e-Gov) provides both these services:

- **GST Suvidha Provider (GSP) Services** (In below figure depicted as GST Interface Services)
- **Application Service Provider (ASP) Services**



3. NSDL ASP Services

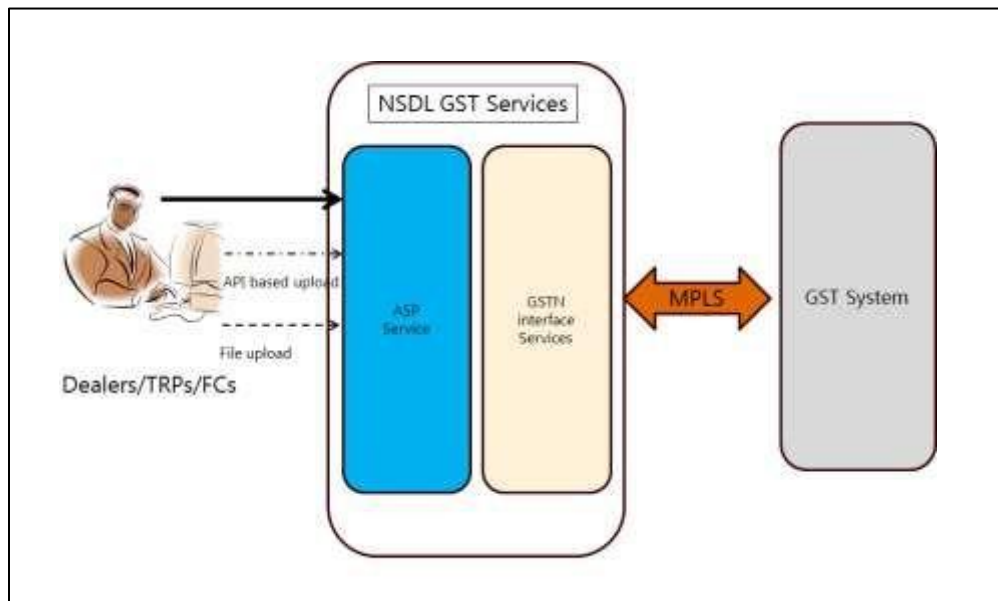
ASP services are offered through centralised application. Users will register online and can create role based multiple users. Users can create multiple GSTINs under one registration.

NSDL ASP Platform provides multiple advantages like, -

Integrated services (ASP+GSP) under one umbrella.

- Agile handling of frequent changes in data formats.
- Data related to GST compliance will be stored securely for multiple years.
- Zero start up time.

Dealers can avail NSDL ASP services through NSDL e-Gov as depicted below :



Presently, the compliance by the Dealers under Excise, Service Tax and VAT is on selfdeclaration basis. Dealers determine their net tax liability (after considering the allowable input tax credit (ITC)), pay taxes and file Returns with the respective Authorities. However, in

GST the tax determination will be done by GST system, this will be based on the matched transactions reported by the Sellers & Buyers.

For GST compliance every Dealer will have to undertake the following every month:

- a) Filing of Sales invoices to GST system (GSTR1),
- b) Downloading of Purchase invoices from GST system (GSTR2A),
- c) Added/modified/rejected/accept Purchases invoices downloaded from GSTN and Filing of finalized Purchase invoices to GST system (GSTR2),
- d) Downloading of invoices added/modified/rejected by Dealers (buyers) from GST system (GSTR 1A),
- e) Upload Utilisation of ITC & Cash to GST system,
- f) Filing of GST Return to GST system (GSTR3).

The above is briefly explained below:

In case of Filing Sales Return (GSTR1), Dealers are expected to extract Sales invoices (item wise) from their accounting systems, segregate the transactions sections wise (i.e. Sale to register dealers, Sale to unregistered dealer, Sale to consumers, Nil rated sale, Exports and Debit

/ Credit notes raised against sales invoices raised in previous period), generate a file in the format prescribed by GSTN, create an API and transmit the data to GST system through a GSP. In case there are any rejections from GSTN, download the response and rectify the errors and again upload the said transactions. Once all sales invoices are correctly uploaded Dealer needs to digitally sign and submit & File GSTR 1.

Further, download the invoices where the buyer has added / modified / rejected, take action and upload.

In case of Filing Purchase Return (GSTR2), Dealers are expected to download the auto populated purchase invoices by GST system, reconcile them and in case of discrepancy add / modify / reject the transactions, generate a file in the format prescribed by GSTN, create an API and transmit the data to GST system through a GSP. Once all purchase invoices are correctly uploaded Dealer needs to digitally sign and submit & File GSTR 2.

In both the above cases, Dealers need to reconcile the data as per their Books of account with the data available with GST system. At periodic intervals during the month the Dealers need to download Sales & Purchase summaries and verify whether the transactions are correctly reported.

GST system will generate Ledgers i.e. Tax liability ledger, Input Tax Credit (ITC) Ledger and Cash Ledger for every Dealer. Dealer needs to download these ledgers and utilize the balance under the ITC ledgers for claiming set off against the gross Tax liability. GST system will update the ledgers and calculate the net tax liability; Dealer needs to pay tax which will be updated by GST system. Dealer needs to utilize the balance in the Cash ledgers against the net Tax liability.

Finally, Dealer needs to digitally sign and submit & File GSTR 3.

To enable the Dealers to comply under GST, by undertaking the above activities, NSDL eGovernance Infrastructure Limited (NSDL e-Gov) has developed a cloud based application. Dealer need to register online on NSDL ASP, once registered Dealers can create Users (role

based) & create multiple GSTIN i.e. Dealers (under one Registration). Users can be mapped to a particular GSTIN.

NSDL ASP developed by NSDL e-Gov enables GST compliance with minimal user intervention. The steps for GST Return filing through NSDL ASP and activities to be undertaken by the Dealer and NSDL ASP are indicated below:

1. Sales & Purchase invoices upload to NSDL ASP (Offline Utility for generating data to be uploaded will be provided) **(Dealer)**
2. Save GSTR 1 to GST system (NSDL ASP)
3. Download summary GSTR 1 & reconcile (NSDL ASP)
4. Generate Dashboard (NSDL ASP)
5. Submit & File GSTR1 (using DSC or Aadhaar based e-sign) **(Dealer)**
6. Download GSTR2A (NSDL ASP)
7. Reconcile purchase invoices (NSDL ASP)
8. Generate alerts (NSDL ASP)
9. Take Action on mismatches **(Dealer)**
10. Save GSTR 2 (NSDL ASP)
11. Download summary GSTR 2 & reconcile (NSDL ASP)
12. Submit & File GSTR 2 (using DSC or Aadhaar based e-sign) **(Dealer)**
13. Download & Update Ledgers (NSDL ASP)

14. Utilise ITC **(Dealer)**

15. Pay Tax **(Dealer)**

16. Utilise Cash **(Dealer)**

17. Submit & File GSTR 3 (using DSC or Aadhaar based e-sign) **(Dealer)**

Further, following value added services are also offered apart from the basic GST compliance module i.e. NSDL ASP:

- a) Data Validation Utilities;
- b) Compression enabled data exchange;
- c) Converter for data from your ERP system;
- d) Mobile Application;
- e) Provide utility to determine GST / validate GST.

4. NSDL GSP Services

This feature provides GSTN interface services. This Enables Dealers and ASPs to interface with GSTN through RESTful APIs. Entities desirous to avail the services of NSDL e-Gov GSP will follow the below mentioned steps:

- Enrolment at NSDL e-Gov Portal
- Establishing session with NSDL e-Gov GSP application
- Data transmission to GSTN
- Request / download Reports

Features of NSDL GSP Services:

- NSDL GSP will act as a pass through, Data APIs received from Entities will be passed to GSTN
- Response APIs received from GSTN will be passed to Entities
- Entities will be responsible for reconciliation of data and adherence to due dates
- Subsequent changes in the formats, if any, will be undertaken by the Entities
- GSTN has fixed a limit of 5 MB per API call
- Accordingly, if 1,00,000 invoices are to be uploaded and one API call accommodate 5,000 invoices, Entities will have to make 20 API calls
- Charges for availing this service will be API call based

5. Technical Solution Details

Solution Framework

This section includes detailed solution approach and implementation methodology for NSDL e-Gov GST services.

Proposed solution framework is a **layered technology** solution approach. Advantage of this approach is the ability of the solution architecture to adapt itself to whatever solutions / products are chosen at each layer independent of the other layers.

a) Design Considerations

Below aspects are considered in the design of NSDL e-Gov GST services. The importance of each should reflect the goals the solution is trying to achieve. Some of these aspects are:

- **Compatibility** - The solution is able to operate with multiple browsers. Versions compatibility between GSP API solution and ASP application. Example, GSP API is designed with RESTful API platform and supports backward compatibility.
- **Extensibility** - New capabilities can be added to the solution without major changes to the underlying architecture.
- **Fault-tolerance** - The solution is resistant to and able to recover from component failure.
- **Maintainability** - A measure of how easily bug fixes or functional modifications can be accomplished. High maintainability can be the product of modularity and extensibility.
- **Modularity** - The resulting solution comprises well defined, independent components. That leads to better maintainability. The components could be then implemented and tested in isolation before being integrated to form a desired solution system. This allows division of work in a solution development project.

- **Reliability** - The solution is able to perform a required function under stated conditions for a specified period of time.
- **Reusability** - the solution is able to add further features and modification with slight or no modification.
- **Robustness** - The solution is able to operate under stress or tolerate unpredictable or invalid input. For example, it is designed with resilience to low memory conditions.
- **Security** - The solution is designed to achieve data confidentiality, integrity and availability. Role based access control and audit logs are maintained.
- **Usability** - The solution user interface must be usable for its target user/audience. Default values for the parameters must be chosen so that they are a good choice for the majority of the users.
- **Performance** - The solution performs its tasks within a user-acceptable time. The solution does not consume too much memory.
- **Portability** - The usability of the same solution in different environments.
- **Scalability** - The solution adapts well to increasing data or number of users. Cloud implementation and Distributed architecture to handle increase in volumes.
- **Availability** - Fully redundant systems at local DC as well as in DR. No single point of failure.
- **Manageability** – 24 X 7 Operations, Technical support Desk, Software application development and support, System support Group, Infrastructure and N/W support, OEM support, ITIL framework implementation.

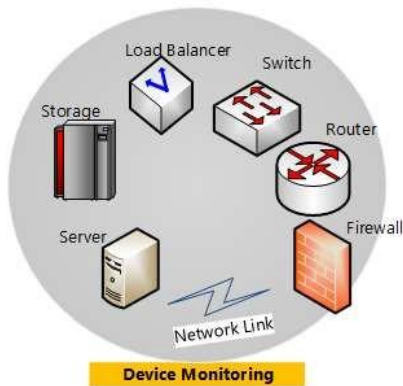
b) Security Design



Security design considerations have been layered across all involved data points.

1. Physical Security: Multizonal security at hosted Data Center provides adequate security measures
2. Network Security: At Network level, perimeter and internal firewall are deployed with multizonal defence control. Secured Socket Layer certificates are used for end-to-end encryption that supports data confidentiality.
3. Operating System: Enterprise Unix Operating System is deployed on respective servers. Hardening and patches are done as per ISO checklist.
4. Data Privacy & Access Control: Role based access control provides Authorisation that helps to maintain restricted, authorised and authenticated access.
5. Application Control: Application has built-in capability of log all transactions for audit. Version controls are implemented to maintain version of application source code.

c) Availability Design



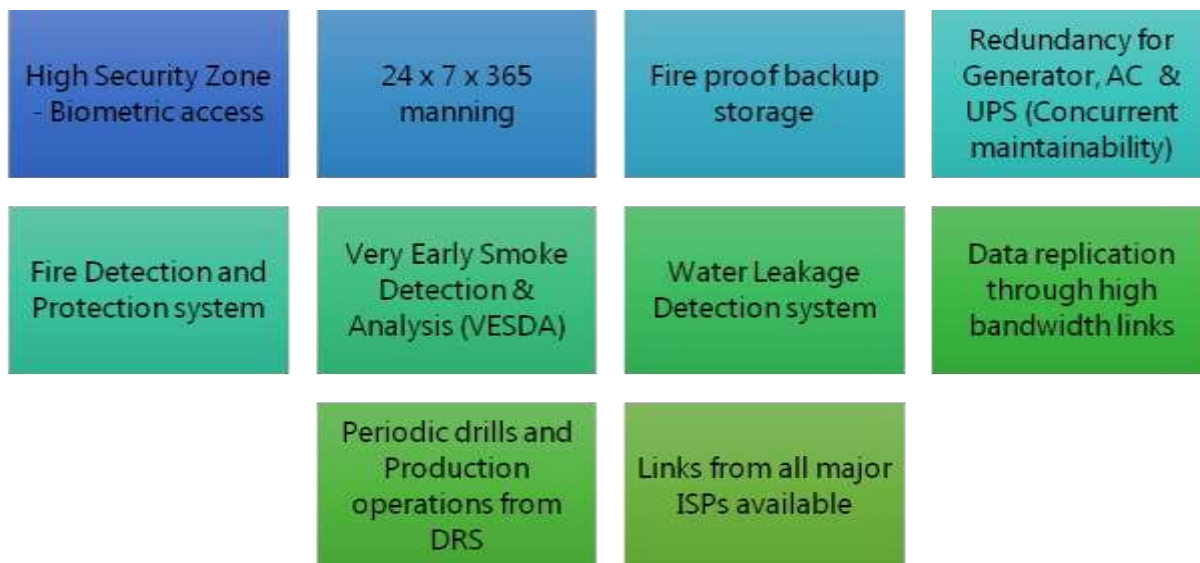
Redundant ICT and component instances	Disaster Recovery	System with Hot Pluggable Equipment
On the fly provisioning capability	24 X 7 Proactive Monitoring and resolution	Information Security
Automated Alert	B2B Service agreement with OEM	Minimum RPO

Availability Design has been achieved with high level of redundancy at each level of components and device instances. Virtualised environment provides facility of on-the-fly provisioning. Information Security requisite control supports Availability design.

System is continuously monitored by monitoring system; it generates alert for configured critical scenarios.

Agreements have been signed with respective OEMs for support of system components. System is designed for minimum Recovery Time Objective and Recovery Point Objective to support high availability.

d) Hosting & DR Strategy



Data Center is manned 24 X 7 for providing facilities management, operations and support. NSDL e-Governance has on site 24 X 7 vendor engineer with on-site stock of critical spares to provide the immediate support for its hardware systems. NSDL eGovernance has vast experience in procuring, hosting and managing various types of Hardware systems. Considering the need of the project, the Hardware resources are selected and procured.

Data Center has built redundancy in utilities like Power, Air Conditioning etc. NSDL eGovernance has Dual UPS and auto fallback Diesel Generator (DG) set. DG set also has a redundancy with auto take over feature build in. Within seconds, the power can be restored and infrastructure does not experience any failure of power. DG sets are capable to keep the equipment running without main power supply for nearly 70 hours and UPS facilitates 30 mins of battery back-up further. Fire detection and protection system with automated FM200 gas discharge on detection of Fire and Smoke using cross zoning of detectors.

This hosting solution includes:

- Fully equipped data centers with facilities as explained above.
- Provision for hosting processing infrastructure such as servers and disk.
- Network equipment and connectivity.
- Backup infrastructure for taking backups and storing media in secured fire proof cabinets/rooms.
- Facilities Management team.

NSDL e-Governance proposes to use Industry standard and reliable compute; network and storage resources with built in redundancies facilities. All hosting facilities will be shared.

Cloud enabled

NSDL e-Governance has designed and developed Tax Information Network, National Pension System-Central Record Keeping Agency, Depository and other projects and have been deployed on x86 and POWER servers. X86 and POWER servers have been virtualized to take advantage of various quality attributes offered by virtualization technology viz,

- Applications have achieved high degree of **horizontal scalability** and rapid provisioning capability that helps adapting to continually evolving business needs and requirements.
- It has facilitated Applications with handling of unpredictable transaction load;
- Virtualization Technology has made it possible to provision resource within a very short time by cloning and image restoration technique.

Virtualization has been coupled with clustering technique to reduce application downtime and thus making High availability possible.

Secured

NSDL e-Gov GST services will be primarily accessible using Internet. Cloud Deployment will encompass defence – in – depth information security principle robust to ensure that only legitimate network traffic is allowed to access the system. Measures will be implemented to ensure that any malicious data traffic is detected and blocked at entry point of the network work as well as on the entry point of the Application. Further, the architecture will provide security for data transmission on network / internet by featuring 128 bit SSL encryption. This also facilitates comfort to the users that they are accessing the authentic server.

Access will be protected through two layers of firewalls of different makes. First layer will be perimeter firewall and second layer will be core firewall (hosted in the core of the network). Use of different makes of firewalls gives enhanced security. In addition, NSDL eGovernance will also provide for intrusion prevention system (IPS) configured to automatically detect and block the traffic matching with the known attack patterns.

The deployment architecture will ensure that access from any interface to any interface / resources are provided only based on the approved rules on the firewall. Firewall primarily will permit only HTTP and HTTP/s traffic from internet users. Ports for telnet, FTP etc. will not be opened for general Internet users. If any specific port is required by any specific function and limited to known users, the same will be done only after appropriate justification and approval. Such exceptions will be allowed by appropriate Firewall rule for specific purpose and between pre-declared IP address as source.

Once setup including compute, storage, network, requisite software and hardening is completed, security testing will be done by CERT-IN empanelled agency to qualify infrastructure for production use.

Backup & Recovery

Backup

NSDL e-Governance will take backups as per the frequency that will be decided once it is in production. This will encompass daily backup to be retained for 1 month, monthly backup to be retained for 1 year and yearly backup to be retained for 3 years.

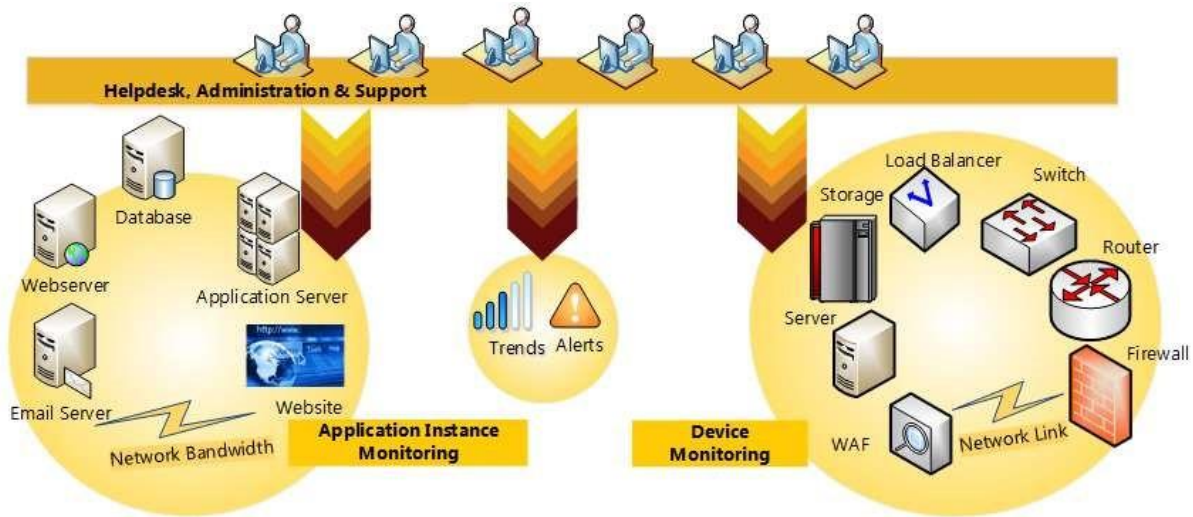
Backup Verification

NSDL e-Governance will use policy to periodically restore old backup to verify the health of the media and the backup.

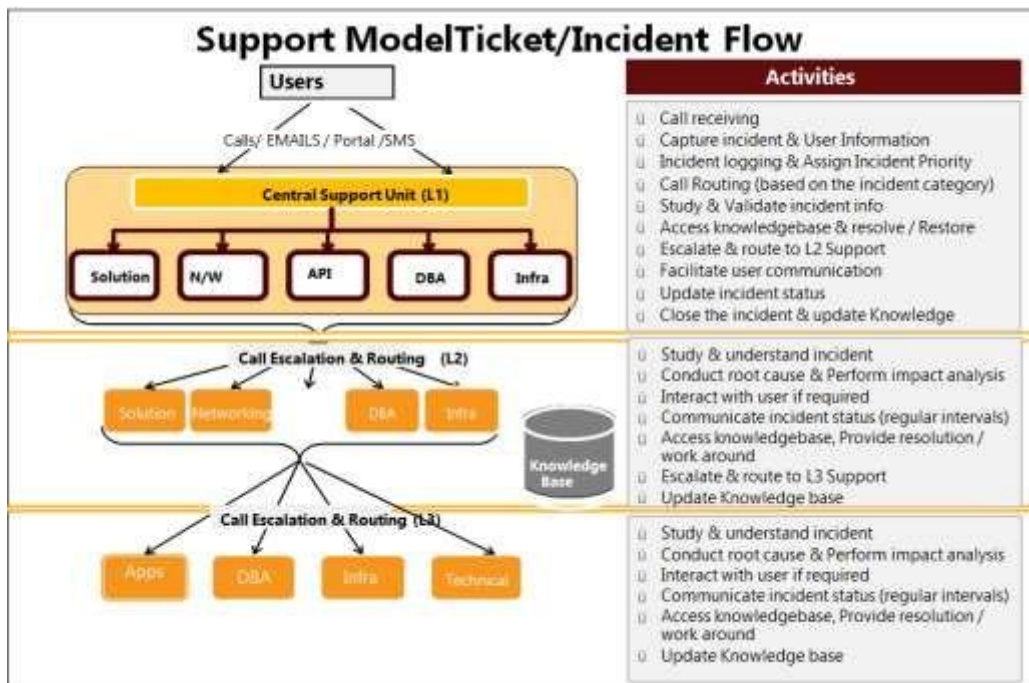
Application Availability SLA Monitoring

NSDL e-Governance proposes to monitor application availability by accessing the homepage of the hosted application. Necessary availability report will be shared with Department in first week of each quarter.

e) Helpdesk and Incident Management Support coverage



f) Support Model (Incident/Ticket Flow)



6. Commercials

The following would be the commercials for NSDL ASP services:

Particulars	Service charges for NSDL ASP compliance solution	Remarks
Upto 9,000 sales and purchase invoices uploaded through GSTR1 and GSTR2 per annum	Rs 2,700 per annum	Payable at the time of commencement of services
In case the number of invoices is above 9,000 per annum	Rs 0.40 per invoice	Payable on quarterly basis*

Note:

- a) Above charges are per GSTIN
- b) Taxes would be payable on above charges as applicable
- c) *Charges for estimated number of invoices for a quarter to be paid and maintained as advance
- d) Billing will be every quarter and bill amount to be paid within 15 days from the date of the bill.

The following services are bundled with this offering:

1. NSDLgst system for compliance
2. NSDL GSP services
3. Server to server communication for upload of data to NSDL ASP portal
4. Email alerts to be sent to vendors on mismatches
5. Data Storage
6. Reconciliation
7. Dashboard & Reports