The State Government Network (SGN) is the state’s enterprise network that provides connectivity between participating agencies to support their mission and objectives. The SGN - the state’s managed internal network- is built around Internet technologies, security, and standards to enable agencies to share mission critical applications and data within the statewide private network.

Managed and operated by the Department of Information Services (DIS), the SGN provides a wide range of network services to support an array of state agency business-critical applications.

On a contextual level, the SGN is divided into three segments. See Appendix C. The SGN Core network is built over a statewide integrated backbone that supports DIS and K20 provisioned networks.

The Core is the segment owned and managed by DIS that contains the Data Center and the regional node sites. The Core includes data processing equipment, carrier-class switching equipment, primary transport circuits, and support infrastructure.

Local Access is the segment that includes the telephone company (telco) networks that connect Customer Sites to DIS node sites. This segment includes local loop circuits, telco networks, and node access circuits.

Customer Sites are state agencies offices connected to the SGN. Customer sites include network routers, switching equipment, servers, and workstations. This segment marks the demarcation point (demarc) where DIS’ managed network control ends and the customer’s begins.

Features
The Following sections describe the functional features of the SGN.
Connected Locations: The SGN has the capacity to connect to any location within the state and accept connections from outside the state.

Core: There are five node sites throughout the state. Each node site is connected to at least two other nodes for redundancy. The SGN connects to the InterGovernmental Network (IGN), the Public Government Network (PGN), and the public Internet. It also provides state government connectivity to corporate business partners. Node sites are interconnected, diversely routed primary transport circuits. Primary transport circuits are sized to support inter-regional traffic.

Local Access: Diversely routed circuits into DIS node sites that are terminated on redundant switching equipment to ensure failover. The SGN aggregates traffic for ATM, Frame Relay, T1, DSL, and Ethernet connections.
Customer Sites: The SGN provides connectivity to more than 66 state agencies, boards, and commissions located in over 1100 offices statewide. Customer sites include network routers, switching equipment, and servers.

Traffic: The SGN has the ability to carry voice, data, and video to any point across the network.
Core: The SGN Core supports voice, video, and data traffic.
Local Access: Supports voice, video, and data traffic to Customer Sites.
Customer Sites: Support voice, video, and data is determined by the customer’s requirements.

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**Scalability**

Scalability is a key design goal of the SGN. The network is scalable to meet customer needs. The network can scale to add customer sites, bandwidth capacity, services, and support new kinds of traffic, such as data, voice, and video.

Core: The Core segment is designed to support network growth over three to five year periods. Circuits among nodes are contracted for three to five year periods and networking devices are designed to accommodate growth requirements.
Local Access: The SGN achieves economies of scale by aggregating demand into large aggregation circuits. The aggregated circuits reduce equipment requirements within the core.
Customer Site: Networking equipment contracts include on-site and off-site maintenance services to reduce risks and manage costs.

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**Problem Management**

The network is monitored and the operations center is staffed 24/7. Problems are logged into a trouble ticketing system for timely resolution. Problems are reported as follows:

Core: All Core network technology has fault management systems that report problems in real-time. Problems are logged and tracked until resolution. Affected customers are notified and provided status throughout the troubleshooting process.

Local Access: Vendor provided circuits are monitored when possible by DIS systems. Vendors monitor their resources and notify DIS promptly when problems are detected within their networks. Problems are logged and tracked until resolution. Effected customers are notified and provided status throughout the troubleshooting process.

Customer Site: DIS managed network equipment is monitored 24/7. DIS operations staff initiates troubleshooting procedures in the event of a problem. Customers can report problems
24/7 using a DIS provided toll-free number. All calls are logged and customers are responded to in accordance to service level agreements.

**Vendor Invoice Management and Customer Billing**

DIS has staff and automated systems to assure vendor invoice management and customer billing accuracy. Service features applicable to the Core, Local Access, and Customer Site segments include:

- Invoice Reconciliation – Circuit and equipment invoices are consistent with contracts and network configuration.
- Electronic Invoicing – Vendor agreements to allow billing data transfer in electronic form.
- Billing Reports Media – Provides delivery options for billing reports.
- Consolidated Customer Billing – Multiple vendor bills are consolidated into a single DIS invoice. Circuit and equipment costs are organized around customer location, programs, projects, or based on other agency accounting needs.

**Contract Negotiation and Management**

DIS leverages aggregated customer demand to obtain the best possible contract terms and conditions. The direct benefits of contract management are applicable to the Core, Local Access, and Customer Site segments:

- Rate Stability – Provides budgetary predictability for agencies and DIS.
- Termination Liability – Mitigates the financial penalty of circuit location changes, additions, or deletions.
- Performance Guarantee – DIS negotiates better than tariff provided performance guarantees.
- Credits for Non Performance – DIS negotiates guaranteed credits where possible.
- Service Migration – Managing the financial risk of upgrading to new services as they become available.
- Network Equipment and Maintenance – DIS negotiates favorable equipment discounts and maintenance agreements through high-volume purchases.

**Flexibility**
Core: The Core is designed to handle growth in bandwidth and hardware in 3-5 year planning cycles. DIS maintains the ability to quickly and economically add and change bandwidth capacity between DIS node sites to meet growing networking demands.

Local Access: DIS has the ability to size high-capacity circuits between a DIS node site and the serving central office, providing the best economies of scale. DIS contracts for local loop circuits provide DIS customers with rate stability, multi-year rates and termination liability relief.

Customer Site: DIS provides customers access to networking equipment purchasing and maintenance contracts for statewide use. DIS also provides customers with the option to lease equipment.

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Supportability
Core: DIS monitors and implements all networking equipment and network software upgrades, including patch management. DIS performs core network maintenance, as much as possible, in ways to minimize interruptions on services and customers. Maintenance events are scheduled in advance with customers according to the Information Technology Service Management Operations Manual. Impact on customers is the primary consideration for determining the maintenance window of specific maintenance events. DIS negotiates a published schedule with its customers and notifies them in advance of any changes. Private sector vendors are required to schedule maintenance activities outside of core business hours between 6:00 a.m. to 6:00 p.m.

Local Access: The vendor service provider is responsible for the local access environment and is responsible for maintaining all software levels in its networking equipment. DIS coordinates any service impacting software upgrade activity with the vendor service provider and DIS customers. In general, DIS requires service providers to schedule maintenance activities outside business hours. DIS works with service providers to schedule maintenance within the maintenance windows defined above.

Customer Site: If the networking equipment is DIS managed, then DIS upgrades all router software per the customer’s requirements. DIS schedules maintenance on customer site equipment according to the customer’s preference. If it is customer managed, then the customer is responsible for all router software upgrades.