

ITS Strategic Roadmap – FY20 Planning

Data Center and Environmental

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Background

The Information Technology Services department is responsible for the management of the Metro Government's primary and backup general government data centers.

Metro's Primary Data Center, which came into service in 2010, is the Metro Government's sole Tier 3 Data Center. The Tier 3 designation is an industry specification that designates a level of availability, redundancy, and security. Due to the significant investment to bring the site to a Tier 3 level and the attendant economies of scale, the Metro Government's construction philosophy is to consolidate and replace the few substandard data rooms in Metro facilities as those facilities are upgraded or replaced, unless a critical business need is identified.

Metro's Primary Data Center includes:

- 14,400 of developed space
- Support for 5 diverse network carriers
- Fault tolerance for dual city-wide network paths
- Redundant power from Nashville Electric Service (NES)
- Four 225kVA Universal Power Supplies
- 1.5mW paralleled emergency power
- N+1 parallel redundancy power and cooling systems

ITS also manages the Metro Backup Data Site. In 2012, an analysis was completed by the Sigma 7 group in a collaborative spirit with all Metro departments and agencies that currently operate data centers to support a shared, modern backup data center to be shared across Metro departments and agencies. This study formed the basis for the Data Center 2 project currently in planning.

Several departments and agencies of the Metropolitan Government continue to operate data centers and are not hosted at Metro Primary Data Center:

- Metro Nashville Public Schools
- Metro Transit Authority
- Davidson County Sheriff's Office

Services offered through the data center have extended through the years to management of critical component infrastructure for all sites where ITS equipment is housed. Environmental support services include design, installation, and maintenance of equipment necessary to provide IT equipment rooms and other spaces with clean uninterrupted power, monitoring of proper temperature and humidity, plus alert and event monitoring via remote communications.



Current Strategic Drivers

1. **Customer Demand: High Availability** (High) – Customers and the citizens they serve demand extremely high availability of data center services to meet their business-critical needs, and for some departmental customers, the life-safety responsibilities they hold.
2. **Disaster Recovery** (High) – As IT services form the basis for services and functions of all Metro departments and agencies, the ability to respond to and recover from potential disaster scenarios is a critical concern, with no area a higher priority than Metro’s data centers.
3. **Challenges in a Complex and Growing Environment** (High) – Presently the ITS department supports IT services within the general government in 265 separate locations. The drive for new facilities and upgrades to existing facilities continues.
4. **Data Center 2 Project** (High) – Planning and design is complete for the construction of Data Center 2 but the implementation of its use as a back-up data center is on hold for capital funding.
5. **Customer Demand: Non-Traditional IT Equipment Protection** (High) – Departments, understanding the need for high availability, increasingly demand power and environmental protection for video servers, security cameras, and associated recording equipment in non-traditional IT settings.
6. **Customer Desire: Cloud Computing** (Medium) – The widespread public acceptance of cloud for services that employees and citizens use every day, along with the potential for positive financial impact and increasingly effective cloud vendor security stance make a hybrid model a potential direction for Metro services. Due to these economies of scale and potential cost savings, a growing number of Metro agencies have investigated and/or migrated services to cloud-based systems.
7. **Customer Demand: Department Control** (Medium) – For many times what are political reasons, customers state the need for “control” of what are at many Federal, state and local government levels considered enterprise shared services.
8. **Primary Data Center Utilities Limited Capacity** (Medium) – Recent increases of hosted equipment will increase the capacity of the electrical and air conditioning utilities.

On the Horizon Strategic Drivers

1. **Additional Data Center(s)** (High) – Planning on the new Data Center 2 and associated space constraints would suggest that additional Data Center type facilities may be needed to house specialty services such as the Emergency Communications Center should a new facility be built in the future.



Short Term Goals (0-6 months) 7/1/19 – 12/31/19

#	Goal/Objective	Est. Start	Est. Duration
1	Verify the buildout of Data Center 2 is ready for expansion when financing is achieved. Validation of Data Center 2 HVAC and power configuration. Installation and configuration of environmental monitoring systems. Capital funding required.	7/2019	4-6 months
2	Conduct a review of ITS supported facilities for proper placement and sizing of UPS and environmental monitors. Capital funding required	07/2019	6 months
3	Analyze the need for a DCIM Data Center Management tool to facilitate capacity planning and server placement management. Capital funding required.	07/2019	6 months

Medium Term Goals (6-18 months) 1/1/20 – 12/31/20

#	Goal/Objective	Est. Start	Est. Duration
1	Start assessment to determine options for increasing power and cooling capacity on current primary data center build out for high density conversion. Capital funding required	1/2020	9 months
2	Perform analysis of impact of Cloud and Virtual Server utilization as it relates to slowing down the physical size foot print in the data center(s).	3/2020	3 months
3	Vendor review of all data center critical systems for EOL estimates and/or major preventative maintenance work to extend EOL. Consultant money required.	4/2020	6 months

Long Term Goals (18-36 months) 1/1/21 – 6/30/22

#	Goal/Objective	Est. Start	Est. Duration
1	Develop data center balancing plan to ensure redundancy during outages of major production systems. Assumed funding and greenlight for Data Center 2.	2021	6 months

Related Roadmaps

- Cloud infrastructure
- Server Support
- Server infrastructure
- Network infrastructure

