

ITS Strategic Roadmap FY16

Wireless Networking

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Background

The Metro Wireless Network Infrastructure is defined as the communications components that make up and support the reliable wireless transmission of voice and data services both within and external to Metro Government facilities throughout Davidson County as well as supporting connectivity for outside entities such as the Internet, business partners and third party entities. These components include routers, switches, wireless devices, firewalls and other gear which provide wireless services to office spaces, outdoor spaces like parks, city streets and other locations.

According to a 2013 study by Gartner, the demand for network bandwidth is currently increasing at an annual average growth rate of 50%. During 2014 a significant upgrade was completed which improved upon the throughput, stability, scalability, management and footprint of this Metro Wireless network. This process of improvement began at the core of the network and has included all components out to the customer facing edges.

ITS delivers wireless services for Metro employees use on Metro Government business within select office spaces. Wireless services are also used for Public Safety concerns such as the delivery of Metro Nashville Police Department (MNPD) surveillance video from street mounted cameras, the connectivity of MNPD cruisers and NFD vehicles.

In addition, through the Metro Free Public WIFI initiative, we also provide to the Davidson County residents and visitors in 72 public gathering places such as at all public libraries and Parks Community Centers, and locations where Metro business is conducted, such as at the Planning and Development One-stop Shop, the Sonny West Conference Center, Metro Council Chambers, and others.

Moving forward this process will continue and we will build upon the previous goals of improving reliability with a new emphasis towards increasing services to more agencies, enlarging our geographic coverage area, providing for increased bandwidth and improving our processes to assist in reaching these goals and completing projects efficiently and successfully.

Current Strategic Drivers

- 1) **Expectation for Ubiquitous Wireless Coverage** (High) – In a world where every fast food restaurant offers free Wi-Fi at some level, there is an expectation among Metro employees and citizens for complete coverage for Metro internal Wi-Fi as well as free public Wi-Fi. These expectations must be applied against available budget and resources.
- 2) **Bandwidth Requirements** (High) – As Metro department and agency systems become more bandwidth intensive though increasing used of images, video and Voice over IP (VOIP) telephones, bandwidth must be in place to ensure consistent and reliable wireless service.



- 3) **Customer Need: MNPD Safety Video** (High) - This project driver includes sustaining the current infrastructure and an expansion of the existing infrastructure and is intended to provide for additional bandwidth and an increased geographic coverage area as defined by the MNPD.
- 4) **Wireless Security** (High) - Within the various wireless networks made available via the Metro Network, there are requirements for varying degrees of security. This is satisfied with a number of hardware and software components which provide for isolation, encryption and other protections to deliver the required level of service ensuring a secure wireless environment for the intended customer base of that service. These mechanisms are continually reviewed and adjusted where necessary to maintain an acceptable level of protection.
- 5) **Bring Your Own Device (BYOD)** (High) – Customer demand for access to everything, all the time, from any device, from anywhere.
- 6) **Customer Needs: Special Events** (Medium) – There are a number of locations that either provide or support special events where wireless network services delivers a key benefit to various entities. Typically these are events that produce large numbers of wireless users (potentially thousands) in a limited space for a limited time, which is a different model than typical wireless networking. Examples include the CMA events at the Walk of Fame Park, CVC events at the Walk of Fame Park, and various activities at the Fairgrounds.
- 7) **Internet of Things (IoT)** (Medium) – IoT pertains to the basic networking of various devices such as your home thermostat or television to allow communication and control capabilities. In the Metro Government environment, uses include the provisioning of wired/wireless connectivity of service vehicles for the management and maintenance activities of those vehicles, communications for Emergency vehicle devices such as ambulances and their medical devices, Fire Department vehicles, MNPD vehicles devices, RTA vehicles and other departmental specific vehicles. Another aspect of this vehicle communication includes the provisioning of GPS location information delivered from the vehicle back to the appropriate agency for application input so as to be able to locate these vehicles from a particular departmental application.

On the Horizon Strategic Drivers

- 1) **Challenges with Network Management in a Growing Environment (High)** – As the amount of coverage increases, the complexity of the network and its management challenges increases as well.

Short Term Goals (0-6 months) 7/1/15 – 12/31/15

#	Goal/Objective	Est. Start	Est. Duration
1	General wireless requests – Develop a more formalized process for addressing the various types of wireless requests within the global ITS process flows.	Current	3 months



2	Internet of Things – Work with the Nashville Fire Department to identify requirements and develop solutions for their 62 vehicle fleet. This includes connectivity for medical devices to the vehicle as well a vehicle to outside agencies like Hospitals, GPS location information delivery from the vehicle to the CAD dispatch system, etc. Capital required – To be supported by NFD and other departmental budgets	Current	ongoing
3	Special Events – Continue work towards implementation of wireless technologies and services at the Walk of Fame Park and the Fairgrounds along with coordination of these service deliveries with MCC, CMA and the CVC. Capital required – Amount not yet determined	Current	6 months
4	Market trends and Service provisions – review of customer demand for various types of wireless services to ensure we are providing the appropriate services at an appropriate cost to our varied customer base.	7/15	Ongoing
5	BYOD (Wireless) – Work with the Enterprise Services group to provide for a more expanded support of the BYOD initiative. Capital required – Not yet determined	7/15	ongoing
6	Special Events – Continue work towards implementation of wireless technologies and services at the Walk of Fame Park and the Fairgrounds along with coordination of these service deliveries with MCC, CMA and the CVC. Capital required – Already budgeted	7/15	3 months
7	MNPD safety video– Work with the MNPD to identify the next batch of locations that can be fitted with new surveillance cameras or upgraded from the previous video solutions. Capital required – primarily provided for within the MNPD budgets.	12/15	ongoing

Medium Term Goals (6-18 months) 1/1/16 – 12/31/16

#	Goal/Objective	Est. Start	Est. Duration
1	Services expansion (Wireless) – complete implementation	1/16	Ongoing
2	Ad-hoc Wireless – Continue to add and improve upon our abilities to provide ad-hoc wireless services. Capital required – Amount not yet determined	1/16	Ongoing

Long Term Goals (18-36 months) 1/1/17 – 6/30/18

#	Goal/Objective	Est. Start	Est. Duration
1	EOL –Provide for EOL replacement of wireless network components and upgrades where required.	1/17	12 months



Related Roadmaps:

- Data Center and Environmentals
- Mobility
- Network Infrastructure
- Network Security

