



# How Layer 2 Ethernet Can Future-proof Federal Networking

**W**ith the rise of artificial intelligence, more automation and especially the migration to the cloud, federal leaders need a new approach to networking.

“As more applications across the government move to the cloud, the networks that support those applications and those data needs will have to evolve as well,” said Ken Folderauer, vice president and general manager of Comcast Government Services.

The proliferation of cloud and the emergence of new data uses together require federal agencies to adopt a new approach to their network architectures. Rather than network deployments that support specific applications, as in the past, they need to adopt an approach with maximum flexibility in the face of rapidly shifting mission requirements.

A Layer 2 Carrier Ethernet service model can help to meet this critical need, establishing a solid foundation in support of current and future networking requirements.

## Evolving needs

Agencies are migrating applications to the cloud at full speed, but that change comes with struggles, said Colin Gosnell, Director of Engineering at Comcast Government Services.

Cloud raises the bar on networking requirements. Rather than accessing data on local servers, federal workers increasingly depend on their networks to connect them to the data and applications they need to access in order to meet their mission.

Existing network topologies are built in support of specific applications or limited mission sets and these legacy topologies may lack the flexibility demanded by fast-changing requirements.

“Agencies don’t know what the mission requirement is going to be three years or five years down the line,” Gosnell said. “That’s something they can address from the standpoint of network architecture, by adopting an approach that enables a high degree of flexibility and scalability.”

There’s a sense of urgency here, as many agencies might soon find that their existing networks are no longer supported by their carriers. “If you’re not moving to a more modern form of connectivity, you’re going to be left behind,” said Gregory Taylor, Senior Director of Sales in the Defense sector at Comcast Government Services.

## A flexible approach

Agencies need a network topology that can remain flexible to accommodate their operations: an architectural approach with maximum flexibility supporting mission-critical applications. Ideally, they need a strategy that simplifies network acquisitions and network management, while simultaneously delivering top-notch performance.

All this can be achieved by focusing on the base network layer. Rather than build a network that supports a specific application, with a transport mechanism that may not be optimal for future needs, agencies can shift their network connectivity approach to a Layer 2 Ethernet transport layer.

“By purchasing networking through a Layer 2 Carrier Ethernet service model, an agency creates a solid base to build on. Doing so maintains networking connectivity between the agency’s disparate locations, and it also provides network-layer protection of the traffic between those different locations, while enabling agencies to have control of the higher-level network configuration designed to support their specific applications.” Gosnell said. “

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**GREGORY TAYLOR**

Senior Director of Sales in the Defense sector  
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This approach empowers agencies to shift with changing mission needs. “It doesn’t force an agency into a certain topology that they must then follow for all future application deployments,” he said. “It gives them that flexibility to adjust to those future requirements.”

Layer 2 connectivity allows traffic segmentation, or building tunnels within the layer in support of specific application requirements. This gives the agency flexibility to adapt the network to specific mission requirements and support both legacy and future applications simultaneously.

Where former procurement cycles hindered the adaptation of new networking topologies in response to evolving requirements, a Layer 2 Ethernet approach helps agencies pivot on the fly in support of emerging applications.

“Agencies can make changes as needed, without affecting that base layer,” Gosnell said. “That means they don’t have to make contractual changes to the network in order to change how the applications behave. They can make those higher-level changes themselves, which can help limit deployment delays that come with prolonged procurement cycles.”

### **The Comcast benefit**

Comcast Business provides the network foundation agencies need to run bandwidth-intensive applications, with a high-speed, high-capacity network operating across a private infrastructure comprising over 185,000 miles of fiber.

In fact, Comcast already delivers secure access to cloud and data center resources, providing connectivity and communications to among over 1.8 million Ethernet-enabled buildings.

“We are an enabler of the cloud. That’s our mission,” Folderauer said. “We have one of the most advanced fiber networks in the country to leverage in support of the federal mission.”

With telecommunications and networking needs, that local fiber is a key differentiator, at a time when data use is spiking, and when cloud-based applications strain network infrastructure.

“At Comcast, our focus is on that local fiber,” Gosnell said. ““Since 2017, we’ve invested more than \$20 billion in building out our local fiber network.”

“We’ve leveraged the infrastructure that was put in place to build Comcast cable services, and we’ve enabled it to handle very large data flows, to provide highly resilient and scalable solutions for the federal government,” he said. “We’ve put in place a very strong, very reliable infrastructure in support of those massive data flows.”

Agencies can take steps now toward preparing their network architectures for the future. As carriers sunset their legacy technologies, and cloud simultaneously raises the bar on connectivity, federal leaders can begin to explore the advantages of Layer 2 Ethernet connectivity.

By moving in this direction, they can establish a strong base upon which to build. Layer 2 Ethernet gives them the speed and capacity they need to meet today’s demands, while also allowing the flexibility to adapt quickly and cost effectively as networking needs evolve in response to emerging uses of data and applications.

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