U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

NextGen Organization Policy

ORDER NG 6100.6

Effective Date: 07/02/19

SUBJ: FAA Office of Finance and Management Emergency Management Program

1. Purpose of This Order.

a. This order advises the Federal Aviation Administration (FAA) acquisition workforce that telecommunication companies are discontinuing Time Division Multiplexing (TDM) telecommunications services. This order provides guidance on the FAA's plans to standardize the use of Ethernet interfaces and the Internet Protocol (IP) for ground-to-ground, air-to-ground, intra- and inter-facility communications, for both voice and data.

b. This order directs Program Offices, and others responsible for FAA systems and applications, to undergo a TDM-to-IP assessment. This order applies to all system owners and Program Offices for all systems and services that use telecommunication services. This assessment will be conducted by Communications, Information & Network Programs (AJM-31), with support from the affected domain system owner and associated Domain Roadmap Lead, who can be identified by contacting NAS Enterprise Planning & Analysis Division (ANG-B2). NAS domain systems that are currently under development must coordinate their architecture and technology plans with ANG-B2. Operational NAS, Mission Support, and Research and Development domain systems and applications affected by this policy, that are not planning near-term improvements, will also work with AJM-31 and ANG-B2 to assess the impacts of converting their systems. The outcome of the assessments must show the specific impacts of conversion and note them as distinct line items when combined with other funding requests to the Joint Resources Council (JRC) or Capital Investment Team (CIT). As of the effective date of this order, all provisioning of new services should be based on IP services.

2. Audience. This order applies to all persons and organizations at the FAA responsible for specifying, developing, evaluating, acquiring, or managing systems and applications that require either intra- or inter-facility communications for voice or data. This order also applies to any person or entity that has an agreement with the FAA for providing, using, managing, or has oversight of FAA Enterprise information or information systems.

3. Where to Find This Order. This order can be found on the FAA.GOV website under the "Regulations & Policies" tab. Select the "Orders & Notices" link. This order can also be found on the MyFAA Employee website**.** Use the "Tools & Resources" tab and select "Orders & Notices

4. Technology Requirements.

a. Unless the TDM-to-IP assessment recommends otherwise, any system that plans to leverage existing leased TDM services, or to order new leased services, must instead use Ethernet-based interface technology and associated IP protocols including:

(1) Telecommunication services for Operational NAS, Mission Support, and Research and Development domain systems, and applications within the systems/program boundaries (intra-system communications);

(2) Telecommunication services for Operational NAS, Mission Support, and Research and Development domain systems and applications with other Operational NAS, Mission Support, and Research and Development domain systems and applications (inter-system communications);

(3) All telecommunication that leverage leased TDM telecommunication infrastructure;

(4) All telecommunication services for Operational NAS, Mission Support, and Research and Development domain systems and applications and systems or applications outside of the FAA domains, through approved security gateways and boundary protection.

5. Background:

a. Commercial telecommunications carriers have notified the Federal Communications Commission (FCC) and their customers that they will no longer provide services based on Time Division Multiplexing (TDM) technology. The majority of FAA systems depend on TDM-based telecommunications services to provide inter-facility connectivity. Many FAA systems have not modernized their communications technology because of budget shortfalls, system dependencies or other factors.

b. Telecommunications providers across the United States are standardizing the use of Ethernet technology and IP communications protocols. The availability of TDM-based technologies will decrease over time. The FAA intends to transition all voice and data communications from TDM-based communications to Ethernet-based communications interfaces and standardize on the use of the IP protocol

6. Definitions.

a. Ethernet – The common term for communications technologies defined by IEEE 802.3 (the base version, refer to the most current version), which provides a standardized method for systems to exchange digital data between devices. Ethernet provides a simple communications interface intended for connecting multiple devices, such as computers, routers, and switches. There are multiple standards for network-based interfaces; these can be found on The Institute of Electrical and Electronics Engineers website "standards.ieee.org", while supporting information can also be found at the Internet Engineering Task Forces (IETF) website "www.ietf.org.

b. Internet Protocol (IP) – A connectionless protocol used to route data packets across a network. Use of IP can occur in private networks and does not imply use of the public Internet. Multiple standards are available for the IP protocol on the Internet Engineering Task Force (IETF)

website "www.ietf.org" or The Institute of Electrical and Electronics Engineers website "standards.ieee.org".

c. Serial Interface - A serial communications interface is a shared boundary between a system and a communications channel that sequentially transfers data, one bit at a time. Multiple standards and types of serial interfaces are available on the Internet Engineering Task Force (IETF) website "www.ietf.org" or The Institute of Electrical and Electronics Engineers website "standards.ieee.org."

d. Time Division Multiplexing (TDM) – A method of combining multiple serial interfaces with unique data within a single larger data stream by separating the signal into many segments separated in time, each assigned a duration and location within a defined frame. The receiving end will reassemble the data stream based on the time and location assignments. TDM-based protocols generally require a dedicated "full period" connection at the communications interface. There are many standards for these interfaces which are available on the Internet Engineering Task Force (IETF) website "www.ietf.org" or The Institute of Electrical and Electronics Engineers website "standards.ieee.org."

7. Distribution. This order is available electronically as described in paragraph 3.

Pamela Whitley,
Acting Assistant Administrator for NextGen