FAA Enterprise Network Services (FENS)

Federal Networks 2020

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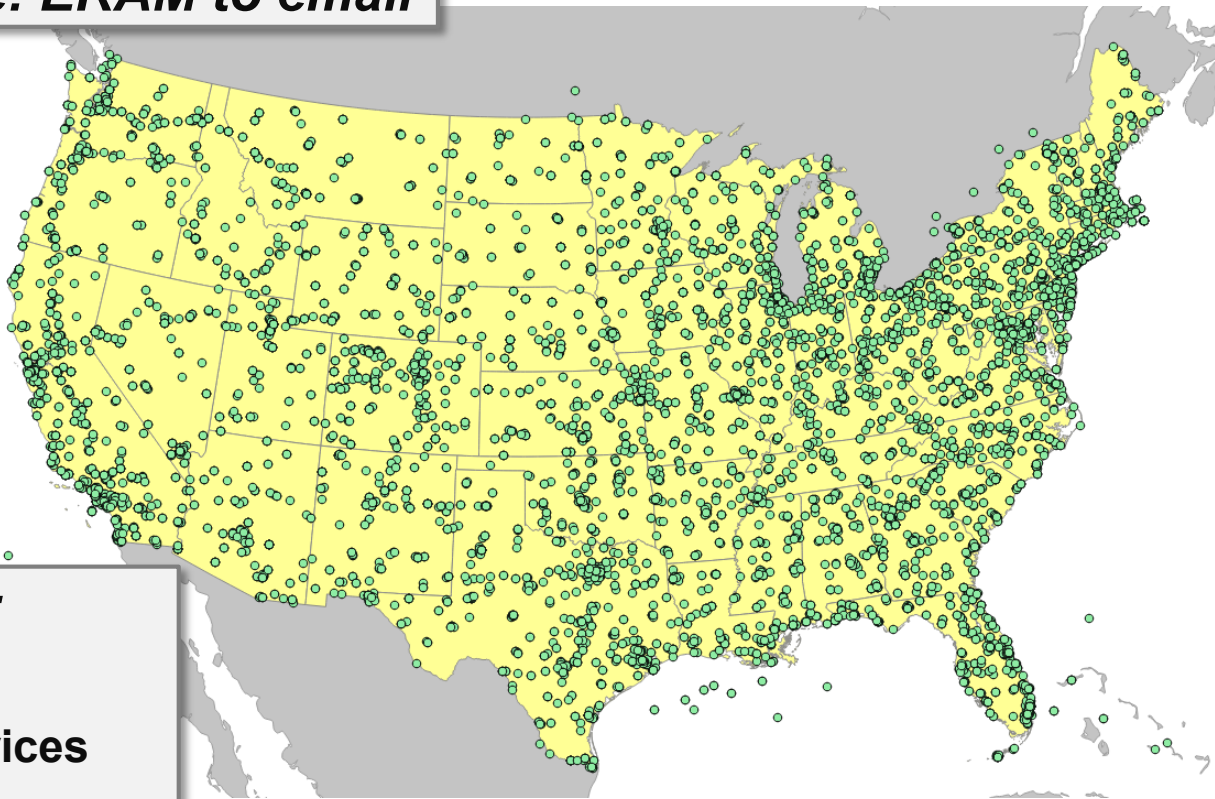**Federal Aviation Administration**

FENS Program

Program Definition

The FENS Program is delivering a solution for FAA telecommunications that aligns with commercial communications services and emerging technologies.

FENS Scope, Scale, and Remoteness

FENS Scope: ERAM to email

FENS Scale:

- **4,500+Sites**
- **28,000+ Services**
- **200+ Systems**
- **CONUS,OCONUS, and International**

FENS Remoteness: About 75% of FAA service delivery locations are in remote locations with limited telco access

FENS Meets Critical FAA Needs

To replace the expiring FTI contract

- FTI contract awarded in FY2002
- Extended through FY2022
- Replacement for FTI for all services, at all locations

To enable move from TDM-based technologies to IP-based

- TDM technology being phased out in the commercial market
- FENS is long-term solution for migrating from TDM networking technology

To comply with new FAA security requirements

- FISMA High and other priorities

To meet requirements not supported by legacy networks

- NextGen ConOps for advanced information management
- FAA's objectives for improving NAS resiliency
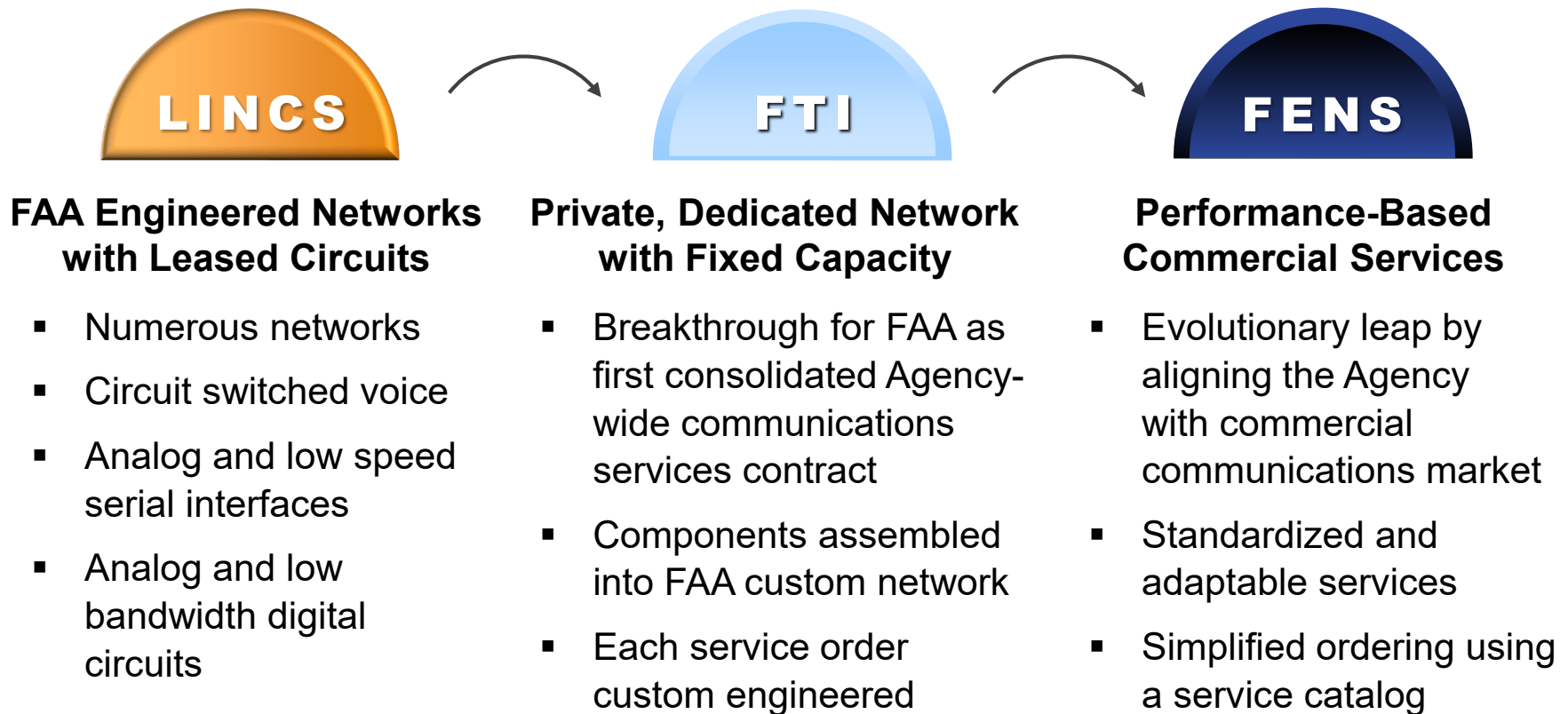
FENS Is Critical to the FAA's Future

Key Operational Capability for FAA

- Delivery of highly-available and secure communications, information services, and networking capabilities through 2035
  - National Air Space System (NAS) operations
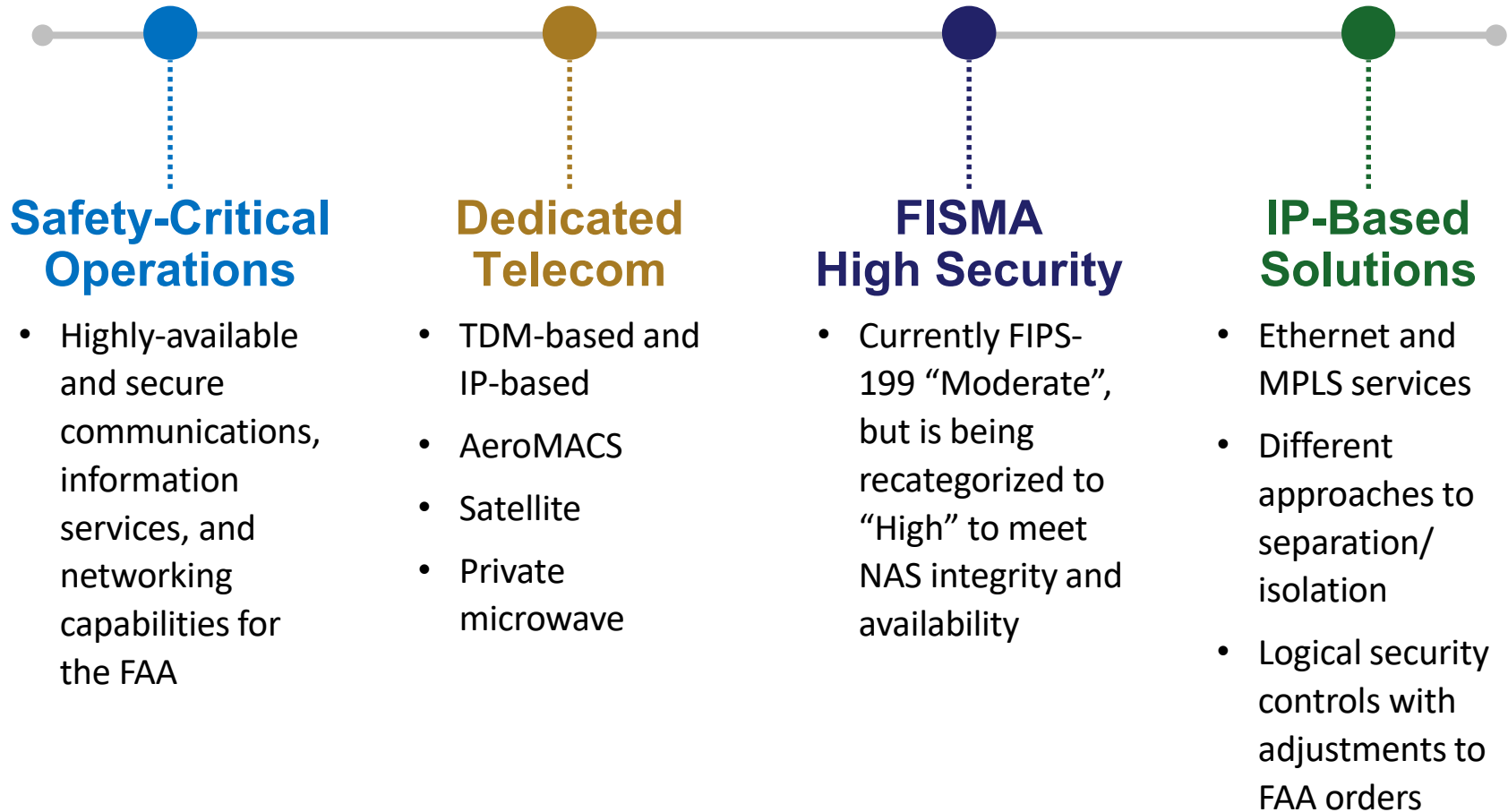 - Agency administration (Mission Support)

Key to the Future of the NAS

- Seamless integration of data, systems, and people
- Network-enabled information access
- Managed service framework

FENS Continues the Evolution of FAA Telecommunications

LINCS

FAA Engineered Networks with Leased Circuits

- Numerous networks
- Circuit switched voice
- Analog and low speed serial interfaces
- Analog and low bandwidth digital circuits

FTI

Private, Dedicated Network with Fixed Capacity

- Breakthrough for FAA as first consolidated Agency-wide communications services contract
- Components assembled into FAA custom network
- Each service order custom engineered

FENS

Performance-Based Commercial Services

- Evolutionary leap by aligning the Agency with commercial communications market
- Standardized and adaptable services
- Simplified ordering using a service catalog

FENS Addresses Defining Attributes of the NAS

Safety-Critical Operations

- Highly-available and secure communications, information services, and networking capabilities for the FAA

Dedicated Telecom

- TDM-based and IP-based
- AeroMACS
- Satellite
- Private microwave

FISMA High Security

- Currently FIPS-199 "Moderate", but is being recategorized to "High" to meet NAS integrity and availability

IP-Based Solutions

- Ethernet and MPLS services
- Different approaches to separation/ isolation
- Logical security controls with adjustments to FAA orders

FENS Addresses FAA Admin IP Network Needs

~1,100 Services at 1,000+ FAA Facilities

- RMA4 at major traffic hubs, RMA6 at all other sites

Typical Large Agency Network

Bandwidth-Intensive Applications

- FAA admin services
- Client based video and web conferencing
- Interactive web-based training

OMB-Compliant Trusted Internet Connection Points

Data Replication Between Data Centers

30,000+ VPN Accounts for Remote Access

NAS Support Services

FENS Delivers Full Scope of Services

Communications Services
- Wide area network (WAN) services
- Intra-facility local area network (LAN) services
- Information management services

Enterprise-level Functions
- Domain Name Services (DNS)
- Enterprise Time Services

Network Security Services
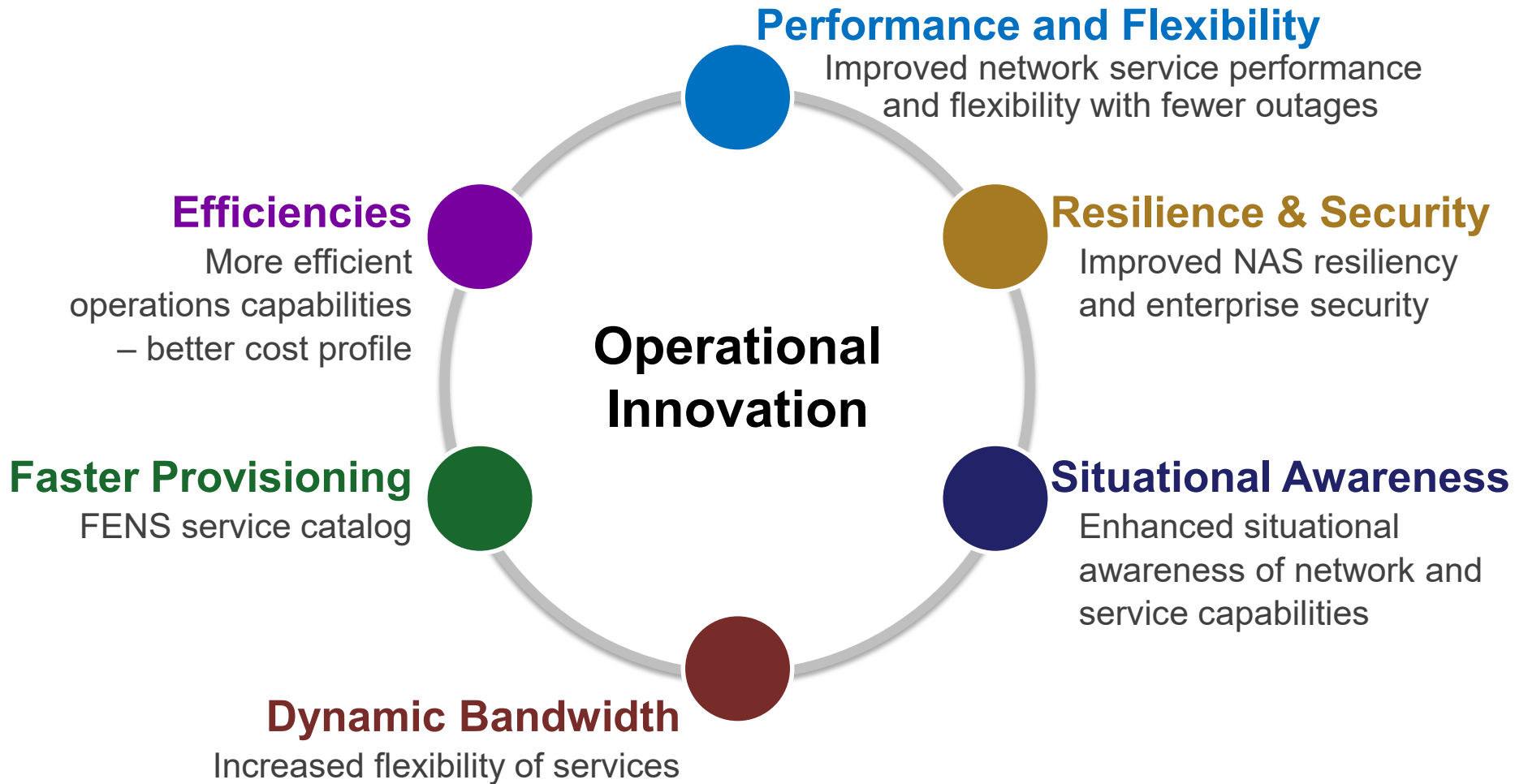- Managed security, including boundary protection

FENS User Portal
- Business operations, network monitoring, security operations, etc.

Support Services
- Network engineering, security management, etc.

FENS Enables Operational Innovation

Performance and Flexibility
Improved network service performance and flexibility with fewer outages

Resilience & Security
Improved NAS resiliency and enterprise security

Situational Awareness
Enhanced situational awareness of network and service capabilities

Dynamic Bandwidth
Increased flexibility of services

Faster Provisioning
FENS service catalog

Efficiencies
More efficient operations capabilities – better cost profile

Operational Innovation

FENS Challenges (1 of 2)

Service Availability, Resilience, and Survivability

- Balancing FAA's safety, security and risk tolerance for the NAS with ability to leverage modern communications technologies
- Widespread outages of ATC services can lead to life and safety issues and have extremely high cost impacts
- Ensuring network performance requirements such as service availability, resilience, and survivability are met

Security

- FENS will be categorized as FIPS-199 High
  - NIST 800-53 controls will be tailored to Air Traffic Organization (ATO) requirements

FENS Challenges (2 of 2)

TDM Discontinuance Considerations

- Currently 90 percent of our services are TDM-based
- FENS is the FAA long-term solution for TDM discontinuance

Price Evaluation Tool

- Providing vendors a flexible and manageable way to submit prices
- Ensuring an apples to apples comparison within the constraints and allowing flexible bid models

FENS Market Research Activities

Draft SIRs
- Three draft SIRs to date (DSIR3 released July 2019)
  - Iterative development of the SIR where industry inputs are addressed
  - Industry events held in response to vendor feedback
- Fourth draft SIR to be released Q1 CY2020

Over Three Years of Industry Engagement
- Three ACT/IAC working groups
- Industry days and technical exchanges
- Four rounds of vendor one-on-one's – initial and following each SIR release
- Technology demonstrations at vendor sites and FAA
- FAA facility site visits
- Over 50 vendors have engaged in the process

FENS Focuses on the Future

New Ways of Thinking
- Promoting innovation
- Fostering robust competition
- Drawing expertise across the FAA and beyond

Wide Range of Perspectives
- Stakeholders
- Other government agencies
- Extensive industry engagement

What Matters Most
- Operational demands of the NAS
- Solution maturity
- New ways of doing business
- Contract that meet FAA needs for 15+ years
- Allowing flexibility with functional requirements
- Best value award

FENS Planning Timeline

CY2020 Q1	CY2020 Q2	CY2020 Q3	CY2020 Q4	CY2021 Q1	CY2021 Q2	CY2021 Q1	CY2021 Q2
Draft SIR 4	Final SIR				FENS Award		

Investment Analysis Phase

- Release final SIR
- Evaluate bids
- Complete the acquisition
- Prepare for Final Investment Decision

Start of Solution Implementation Phase

- Requirements and solution review
- Test and validation
- Transition planning