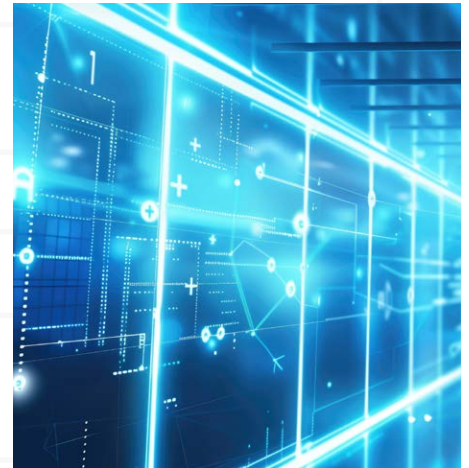


# IPv6 Transition

## WHY IS AN IPV6 NETWORK IMPORTANT?

### Highlights

The next-generation Internet Protocol version 6 (IPv6) replaces version 4 (IPv4), enabling IT modernization advances. The Office of Management and Budget [M-21-07](#) sets goals for agencies and communicates the requirements for completing the operational deployment of IPv6 across all Federal information systems and services. The memorandum helps agencies identify and overcome obstacles that keep them from migrating to IPv6-only network environments and the burdens of running a dual-stack environment. Moving to an IPv6-only network environment enables internet growth and technology innovation by removing technical and economic barriers while ensuring internet security and stability using globally unique network addresses to improve the effectiveness of the latest network defense technologies and cyber forensics. The transition to IPv6-only network environments can reduce network cost and complexity through engineering protocol design and systems architectures.



### Business Value

Transitioning to IPv6 helps agencies to achieve mission objectives while demonstrating a commitment to IT modernization. IPv6 facilitates improvement in network operations through more efficient routing of data and better Quality of Service (QoS) while bolstering mobility and security. Agencies moving toward cloud services will find that most major providers use IPv6 (e.g., Google Cloud, Amazon Web Services (AWS), Microsoft Azure, and Oracle's Cloud). IPv6 will accelerate growth and innovation by expanding the use of Internet of Things (IoT) devices and introducing solutions with integrated cybersecurity.



### Recommendations

Agencies are in various transition phases to an IPv6 operating environment and the industry is generally ahead of the government. Based on their experiences, below are recommendations to help support and facilitate a successful transition.

- ❖ Progress requires the buy-in and support of executive and senior management. Comprehensive stakeholder engagement and routine communications will alleviate barriers.
- ❖ It is imperative to develop an integrated implementation plan that assesses the current environment and clearly stated objectives. The plan should consider all factors in the sequencing of activities and include routine evaluation for adjustments where needed.
- ❖ Leverage agency and industry best practices to determine impact and approach and review guidance from the National Institute of Standards and Technology (NIST) for USGv6 and the Secure Deployment of IPv6.

#### FOR YOUR INFORMATION

Contact your designated GSA representative at [www.gsa.gov/nspsupport](http://www.gsa.gov/nspsupport) or call (855) 482-4348.

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- ❖ Develop and document a well-thought-out IP address schema that minimizes re-work and considers the full scope of IPv6 addressing benefits.
- ❖ Update critical documents and procedures to ensure IPv6 becomes part of normal IT operations and maintenance activities.
- ❖ Consider hiring a contractor - e.g., via Managed Network Service (MNS) under GSA's EIS IDIQ contract - to facilitate and complete the transition to an IPv6-only network, or at least to provide a detailed roadmap for the agency to follow toward that goal.

### What does this trend mean for Agencies?

An IPv6-only network will help agencies alleviate the growing cost of maintaining a dual-stack environment, mitigate dual-stack threat vectors, remove the need to retain IPv4 addresses, and eliminate IPv4 product feature parity gaps. Rather than a must-do activity, agencies may view the IPv6-only network mandate as an opportunity to assess their current enterprise architecture and leverage the OMB requirements to gain leadership buy-in and the resources needed to optimize and modernize their entire operational environment for the future. An IPv6-only networking environment is more scalable, manageable, and cost-effective. However, agencies need to strongly consider seeking contractor support to get the job done more efficiently and allow them to focus more on implementing innovative technologies that will enable them to provide better services to their end-users and the public.

### What does this trend mean for Industry?

The industry recognizes that if their products and services,

IT operational systems, and cloud services don't have IPv6 capabilities, agencies will seek providers that do. Service providers acknowledge the value of IPv6, and content providers similarly acknowledge that IPv6 and the growing number of mobile and broadband subscribers means that their applications are more accessible to the entire internet. The industry must also update IPv6 training course content and ensure it is relevant to specific agency requirements. It is imperative that industry now includes IPv6 capabilities and features as a standard practice requirement in the agency acquisition selection process.

### What is the future of IPv6?

IPv6 is a foundational enabler in the future of IT, governance over internet transmission, and digital transformation. Transitioning to IPv6-only will help agencies to future-proof their environment, ensure accessibility, and provide greater security as we continue to add internet-connected devices.

### What is ITC/GSA doing with respect to this trend?

GSA provides access to contract vehicles, such as [Enterprise Infrastructure Solutions \(EIS\)](#), for IPv6 transition support and integrated solutions. GSA can also assist agencies with

- ❖ Supply Chain Risk Management
- ❖ Migration Planning and System Analysis
- ❖ IPv6 Test and Integration Services
- ❖ IPv6 Pilot Production Deployment
- ❖ IPv6 Full Production Deployment