

## Cisco Services for IPv6

### Executive Summary

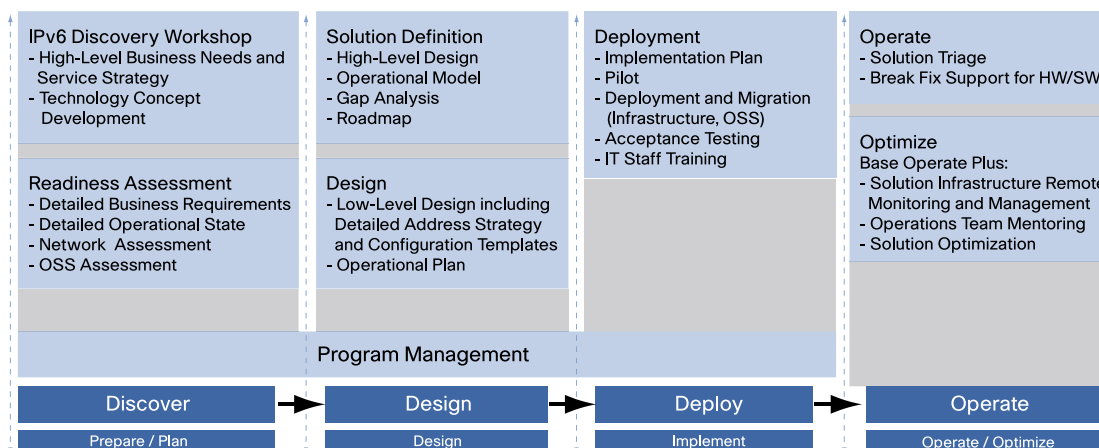
To meet the imminent threat of IPv4 address exhaustion, Cisco® Advanced Services has developed a service solution to help customers meet this challenge and smoothly integrate IPv6 into their environments.

Cisco Advanced Services offer a complete portfolio designed to meet customer needs across all phases of the customer’s network lifecycle, from preparing and planning to operations and optimization, as outlined in Figure 1.

**Figure 1.** Network Lifecycle



Cisco Services for IPv6 are mapped to this same network lifecycle, creating a framework for IPv6 integration activities and deliverables that best meet the customer’s needs for cost savings, risk mitigation, and time to completion. The IPv6 service activities are shown in Figure 2.

**Figure 2.** Cisco Services for IPv6 Lifecycle-Based Framework

### Discovery Workshop

The collaborative discovery workshop serves as a baseline to gather and understand the high-level business needs and requirements with customers. Discovery workshop interviews have agendas that are clearly defined prior to meetings in order to optimize resource alignment and availability. Each workshop is a collaborative session between primary customer stakeholders and Cisco subject matter experts in IPv6, business process, the network, and other relevant technologies. Documented findings from the IPv6 discovery workshop set a clear understanding and agreement on:

- IPv6 business factors, needs, and service strategy
- High-level current infrastructure state
- High-level current operational state
- IPv6 technology concept development

### Readiness Assessment

The readiness assessment includes activities that support detailed business requirements, a detailed operational state, and a network infrastructure discovery. Critical to understanding and defining a customer's IPv6 objectives are a thorough understanding and consensus of the relevant business and technology issues. The Cisco Advanced Services team works closely with customer stakeholders in business, technical, and marketing functions to deliver a customer requirements document that includes the following:

- Mutual understanding of the customer's business profile and requirements
- A high-level review and evaluation of the architectural roadmap and existing network designs
- Identification of global, regional, and site-specific network requirements
- Identification and understanding of the applications and services that are deployed, or planned to be deployed, and how they relate to the technical objectives
- A review of customer technical objectives and requirements for growth
- Current and planned network modifications, deployment time frames, and objectives

This assessment service provides a comprehensive view of the state of the network and operating system software (OSS) for supporting IPv6 services. Cisco recommends this capability assessment as a fundamental step on a customer's roadmap to IPv6 adoption.

During the IPv6 network and OSS assessments, Cisco Advanced Services engineers thoroughly assess the customer's core Cisco network hardware devices and Cisco IOS® Software releases. Equally important to the

network infrastructure are the back-office applications such as network management solution (NMS), Domain Name System (DNS), and Dynamic Host Configuration Protocol (DHCP). The Cisco Advanced Services team also determines the readiness and capability of each of these applications for successful deployment within an IPv6 environment.

An IPv6 readiness assessment document is delivered, providing an analysis of the customer network's capability to provide IPv6 services. The documented analysis:

- Assists the customer in attaining IPv6 compliance
- Helps improve adherence to IPv6 best practices
- Helps increase fault tolerance and reduce the possibility of downtime
- Helps ensure that the new IPv6 network environment provides world-class service
- Provides observations and recommendations that can be used as guidelines for future design issues
- Helps the customer address primary IPv6 objectives

### **Solution Definition**

Information from the discovery workshop and the resulting customer requirements document is applied to the development and definition of a solution, including a corresponding high-level network design. The design maps the customer's business objectives and technical requirements to a proposed network architecture. The IPv6 solution definition process includes the development of the following:

- A solution concept with the proposed network topology
- Recommended network protocols and features to implement the required IPv6 solution
- A high-level design (HLD) for a resilient, scalable, modular network infrastructure with the targeted availability defined by the customer, including a high-level IPv6 address plan
- Design definition specific to business/technical requirements and primary metrics
- An operational model targeting day 2 operations
- A solution gap analysis and roadmap, including high-level integration considerations
- A business case justification, including requirements and risk analyses

### **Design**

The Cisco Advanced Services team provides a detailed IPv6 solution design, which includes a low-level design (LLD) that expands on the concepts in the HLD. Cisco works with the customer to develop the following:

- Required infrastructure changes to accommodate the desired IPv6 solution
- Logical network topology diagrams
- Configuration templates including required Layer 2 and Layer 3 protocols: routing, quality of service (QoS), security, and so on
- A detailed IPv6 address plan
- Software release recommendations for devices conforming to feature and functionality needs
- Acceptance test plans
- Operational plan for day 2 operations

### **Deployment**

The deployment phase begins with aggregation of data from the low-level design, the test plans, and the operational model to create an implementation plan. The actual implementation might involve an initial deployment of a pilot site

followed by progression to a broader infrastructure. Cisco collaborates with the customer to develop an implementation plan, which includes IPv6 network infrastructure staging and the implementation processes. Based on industry best practices and lessons learned, the solution deployment process includes:

- An IPv6 implementation plan
- A successful IPv6 deployment and migration with acceptance testing
- Training, for both the IT staff and the lines of business users

### Operate and Optimize

To be certain that the IPv6 solution is fully operational, Cisco provides solution triage and break fix support for hardware and software. To maintain network health and optimize the functionality of the IPv6 solution, Cisco provides base operate plus. That includes:

- Solution infrastructure remote monitoring and management
- Operations team mentoring
- Solution optimization

### Use Cumulative Experience for Optimal Results

Cisco Services for IPv6 have proven value and success in IPv6 implementations and IP NGN migrations for customers around the world. The model provides local service teams with support from a single, cost-effective team of experts who further build their IPv6 enablement expertise with each implementation. The customer interfaces with local professionals certified by Cisco as their single point of contact, including any integration of third-party products. The collaborating team of Cisco experts also has efficient, strong ties to development engineers and Cisco professionals who influence standards bodies. The Cisco Services for IPv6 customer can use these connections as well as the extensive test labs Cisco has in the United States, the United Kingdom, and India. The customer's specific IPv6 implementation can be pretested in the lab environment.

Intellectual capital includes tools and best practices for design and deployment built over years and across various industries. Cisco uses specialized tools for assessments, audits, automated configuration conversions, and more. This proprietary expertise provides the customer with time-saving and risk-mitigating techniques unique to Cisco that reduce costs and accelerate the IPv6 enablement process.



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