

Chapter 1:
Analyzing Campus Network
Designs



CCNP Switch: Implementing IP Switching

**COMPLEX ENTERPRISE
NETWORK FRAMEWORKS,
ARCHITECTURES, AND
MODELS**

Chapter 1 Objectives

- Describe common enterprise traffic requirements and network design models.
- Describe how to create a plan for implementing routing services in an enterprise network.

Traffic Conditions in a Converged Network

- Modern networks must support various types of traffic:
 - Voice and video traffic
 - Voice applications traffic
 - Mission-critical traffic
 - Transactional traffic
 - Network management traffic
 - Routing protocol traffic
- This mix of traffic greatly impacts the network requirements such as security and performance.
- To help enterprises, Cisco has developed the Intelligent Information Network (IIN).

Cisco Intelligent Information Network

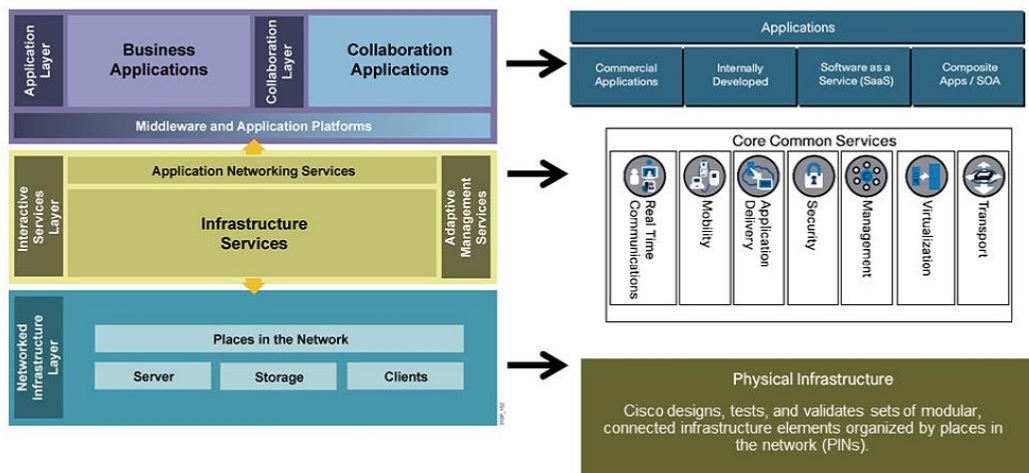
- The Intelligent Information Network (IIN):
 - Integrates networked resources and information assets.
 - Extends intelligence across multiple products and infrastructure layers.
 - Actively participates in the delivery of services and applications.
- The IIN technology vision consists of 3 three phases in which functionality can be added to the infrastructure as required:
 - Integrated transport
 - Integrated services
 - Integrated applications

Cisco SONA Framework

- The Cisco Service-Oriented Network Architecture (SONA) is an architectural framework to create a dynamic, flexible architecture and provide operational efficiency through standardization and virtualization.
 - SONA provides guidance, best practices, and blueprints for connecting network services and applications to enable business solutions.
 - In this framework, the network is the common element that connects and enables all components of the IT infrastructure.
- SONA help enterprises achieve their goals by leveraging:
 - The extensive Cisco product-line services
 - The proven Cisco architectures
 - The experience of Cisco and its partners

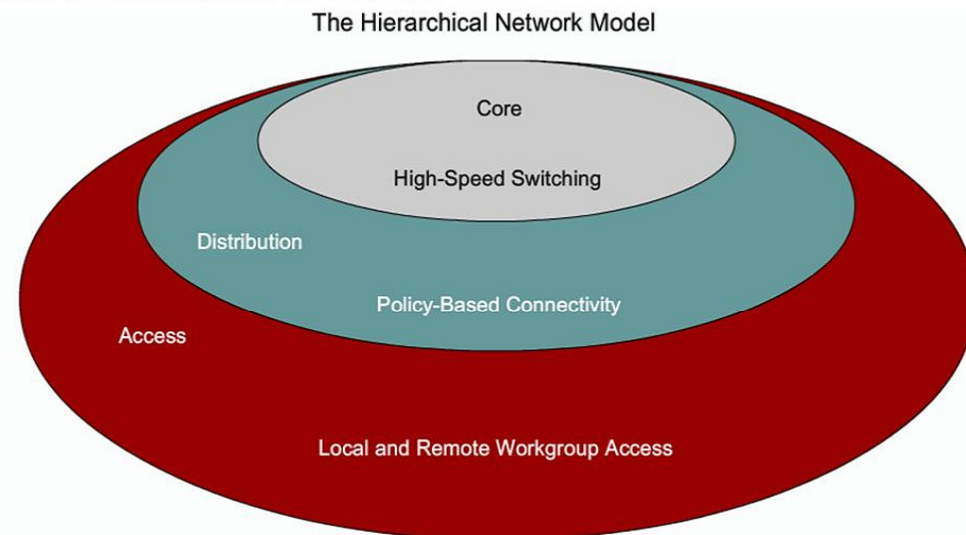
Updated SONA Framework

Cisco Systems has recently updated the SONA framework:

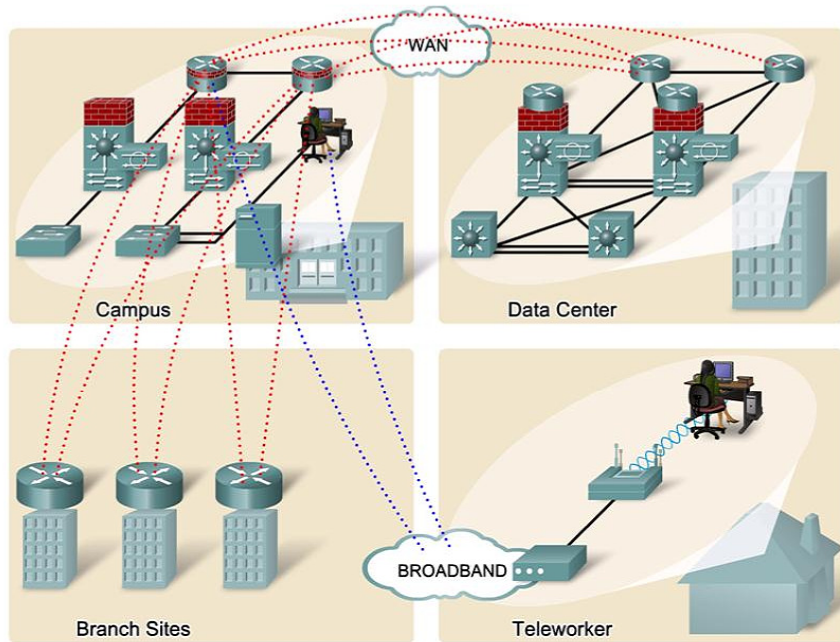


Hierarchical Model

The places in the network in the SONA Network Infrastructure Layer have been identified as follows:



The Cisco Enterprise Architecture



Features of Cisco Catalyst Switches

+nexus 7000 for data centers (FCoE support)



CREATING, DOCUMENTING, AND EXECUTING AN IMPLEMENTATION PLAN

Creating an Implementation Plan

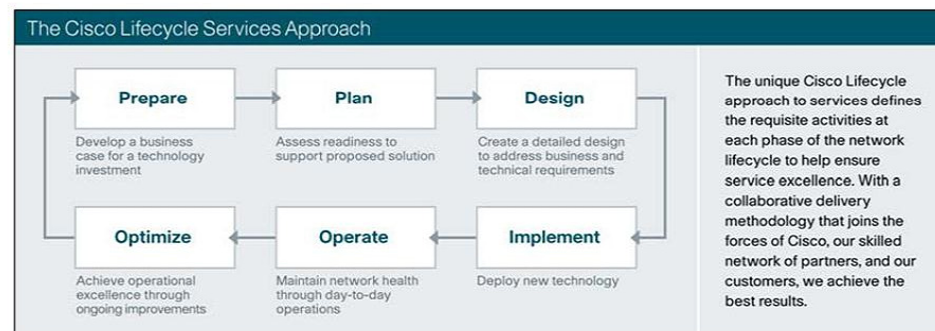
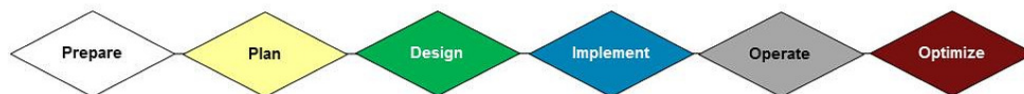
- An effective, documented, implementation plan is a result of good processes and procedures during network design, implementation, and performance testing.
- There are two approaches to implementing changes to a network.
 - Ad-hoc approach
 - Structured approach

Models and Methodologies

- Luckily there are there are many models and methodologies used in IT that define a lifecycle approach using various processes to help provide high quality IT services.
 - No need to reinvent the wheel.
- Examples of these models:
 - The Cisco Lifecycle Services (PPDIOO) model
 - IT Infrastructure Library (ITIL)
 - The Fault, Configuration, Accounting, Performance, and Security (FCAPS) model
 - International Organization for Standardization (ISO)
 - The Telecommunications Management Network (TMN) model
 - Telecommunications Standardization Sector (ITU-T)

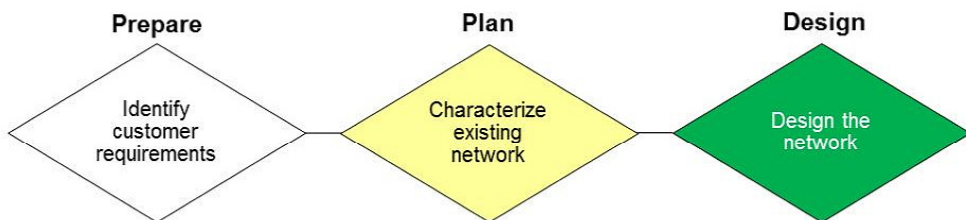
Cisco Lifecycle Services (PPDIOO) Model

The Cisco Lifecycle Services approach defines six phases in the network lifecycle and is referred to as the PPDIOO model:



PPDIOO – Prepare, Plan, and Design

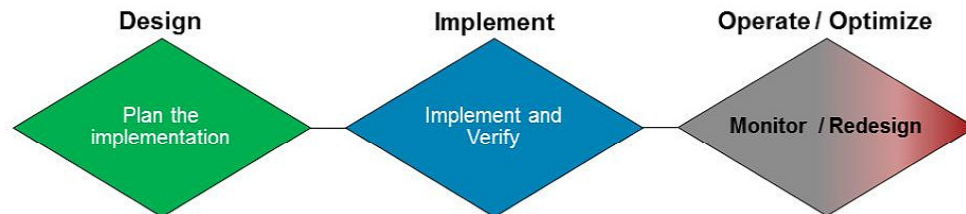
- The PPDIOO methodology begins with these three basic steps:
 - **Step 1 Identify customer requirements**
 - **Step 2 Characterize the existing network and sites**
 - **Step 3 Design the network topology and solutions**



- Once the design is defined, the implementation plan can be executed.

PPDIOO – Implement, Operate, Optimize

- The next three steps include:
 - **Step 4 Plan the implementation:**
 - **Step 5 Implement and verify the design:**
 - **Step 6 Monitor and optionally redesign:**



Implementation Plan documentation

- The implementation plan documentation should include the following:
 - Network information
 - Tools required
 - Resources required
 - Implementation plan tasks
 - Verification tasks
 - Performance measurement and results
 - Screen shoots and photos, as appropriate
- The documentation creation process is not finished until the end of the project, when the verification information is added to it.

Cisco | Networking Academy®
Mind Wide Open™