Creating a Practical IPv6 Transition Plan

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Planning = Risk Management

Any network change project imposes risks.

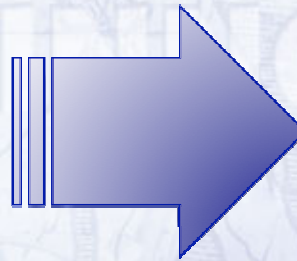**New technology** ⬆ RISK

Comprehensive planning ⬇ RISK

Prerequisites

Transition Plan

Prerequisites

Feasibility Study → **Transition Plan**

The Feasibility Study

- Problem Statement
- Change Assessment
- Standards Assessment
- Vendor Assessment
- Risk Assessment
- Cost Assessment
- Value Assessment
- Timeframe Assessment
- Recommendations

Feasibility Study: The Problem Statement

IPv6 is not an objective;
it is a potential solution to a problem!

- What problems are you trying to solve?
- Are there alternative solutions?
- Factors to weigh when evaluating solutions:
  - Cost
  - Technological maturity
  - In-house expertise
  - Outsourced expertise
  - Multi-problem solution
  - Hardware and software support

Feasibility Study: Change Assessment

- What must be changed?
  - Only need a rough estimate here
- Factors to consider:
  - Upgrades of existing hardware and software
  - Configuration changes to existing systems
  - New hardware and software
  - External peering
  - Staff education

Feasibility Study: Standards Assessment

- What standards are relevant to the project?
- Are the standards mature?
  - Or, do they exist at all?
  - Immature standards pose a risk
- Are there competing standards?
  - This is also a sign of immaturity

Feasibility Study: Vendor Assessment

- *Not* vendor selection
- Resulting vendor list is input to vendor selection in the implementation plan
- The longer the list, the lower the risk

Feasibility Study: Risk Assessment

- Risk identification is essential to risk mitigation
- Prerequisites:
  - Change assessment
  - Standards assessment
  - Vendor assessment
- Factors to consider:
  - Potential cost overruns
  - Stability of standards
  - Vendor roadmap dependencies
  - Potential vendor interoperability problems
  - Partner and service provider dependencies
  - Supportable backout plans at every project phase

Feasibility Study: Cost Assessment

- Cost rough-in only
- Cost estimates influence the value assessment
  - High costs can negate value
- Cost estimates influence timeframes
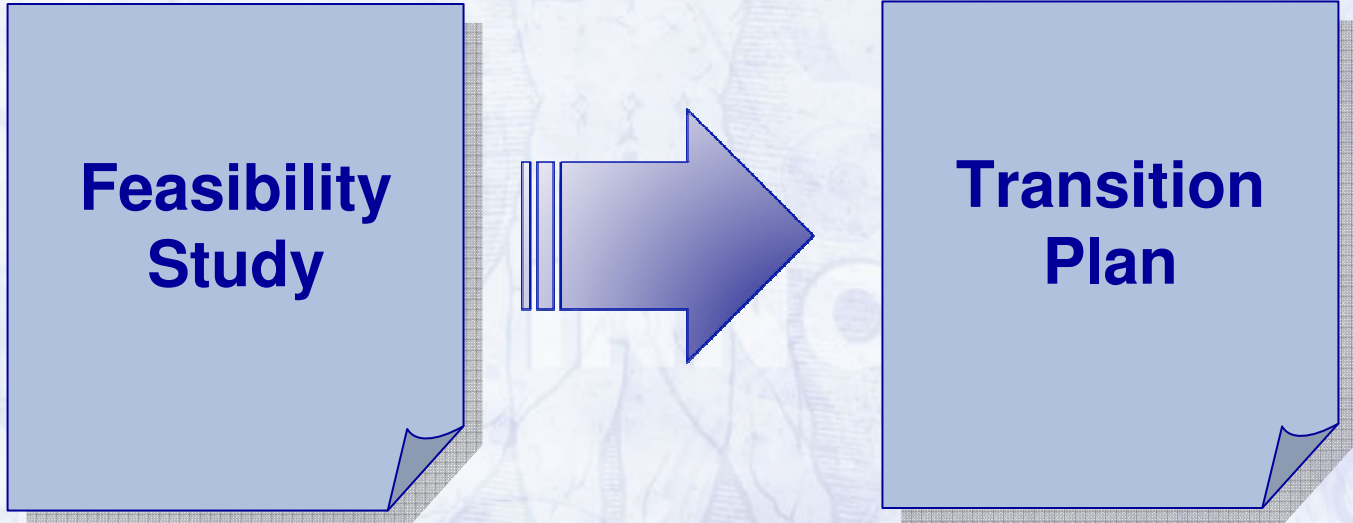 - Adjusting milestones might reduce costs

Feasibility Study: Value Assessment

- Value balances against cost
- Essential for gaining funding
- Essential for gaining executive buy-in

Feasibility Study: Timeframe Assessment

- Time rough-in only
- Factors to consider:
  - Standards stability
  - Vendor roadmaps
  - Cost variability over time
  - Staff training and development

Feasibility Study: Recommendations
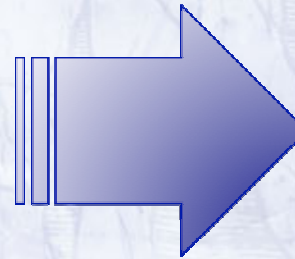
Feasibility Study → **Transition Plan**

- Go / No-go decision point
- Feasibility study makes the case for funding
- Feasibility study provides inputs for transition plan

Transition plan or implementation plan?

Transition Plan

Implementation Plan
Detailed design
Configurations
Execution scripts
Schedules
Resource allocations
Backout plans

The Transition Plan

- High-level design
- Inventory
- Milestones
- Vendor evaluation and selection
- Support and interoperability testing
- Training
- Methodology
- Cost and risk Analysis

The Transition Plan: High-Level Design

- Feasibility study starts with "what"
- Transition plan starts with "how"
  - High-level design specifies how transition is accomplished
- Takes inputs from the change assessment

The Transition Plan: Inventory

- Detailed listing of all systems, HW and SW, that IPv6 will touch
- Input for IPv6 readiness assessment
- Examples:
  - Routers and switches
  - Management systems
  - Backoffice systems
  - Security systems
  - End-user operating systems
  - End-user services

The Transition Plan: Milestones

- Sets project phases
- Sets dates for completion of phases
- Takes input from timeframe assessment
- Influences choice of methodology

The Transition Plan:
Vendor Evaluation and Selection

- Takes input from vendor assessment
- Requires detailed evaluation criteria
- Lab testing is highly encouraged

The Transition Plan:
Support and Interoperability Testing

- **Essential risk mitigation step**
  - First implementation should not be on your production network!
- **Takes input from high-level design**
- **Testplans should include:**
  - Design component validation
  - Design architectural validation
  - Vendor capability validation
  - Component interoperability validation
- **Network modeling adds high value here**
- **Testing provides primary inputs to implementation project**

The Transition Plan: Training

- Who must be trained?
  - Top-tier network architects
  - Management
  - Operations
- How should training be delivered?
  - Self-development
  - In-house programs
  - Packaged outsourced training
- What are the training milestones?
- Lab testing is a good training opportunity

The Transition Plan: Methodology

- "Flash cuts" are always dangerous
- Implementation should be incremental
  - Phase execution
  - Stop
  - Test
  - Validate
  - Move to next phase
- Core-to-edge approach usually best for IPv6
  - Core IPv6 deployment usually the simplest step
  - Network support systems usually the hardest step
  - IPv6 does not "touch" end users until very end
  - Core deployment contributes to operational experience

The Transition Plan: Cost and Risk Analysis

- Go / No-go decision point
- Detailed breakdown of costs
- Accurate analysis of risk
- Inputs:
  - Cost assessment
  - Risk assessment
  - All earlier steps of transition plan

Even if IPv6 project is delayed at this step, it should not be canceled.
IPv6 is not an option, it is inevitable.

Questions?

Thank You!

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