# Transforming Enterprise Networks with Cisco SD-Access

Real-World Strategies from CDW

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BRKENS-1806

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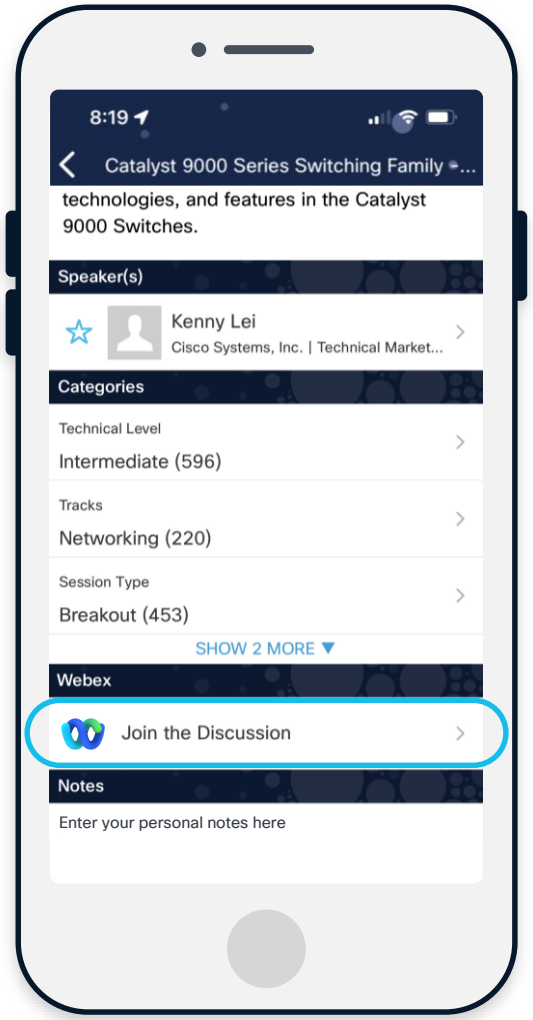


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# Agenda

01 Introduction

02 Planning for Success

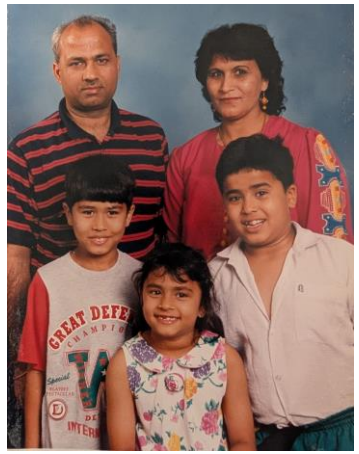
03 Building Successfully

04 Transforming Successfully

05 Conclusion

# Introduction

# INTRODUCTION: PUNEET DUGGAL



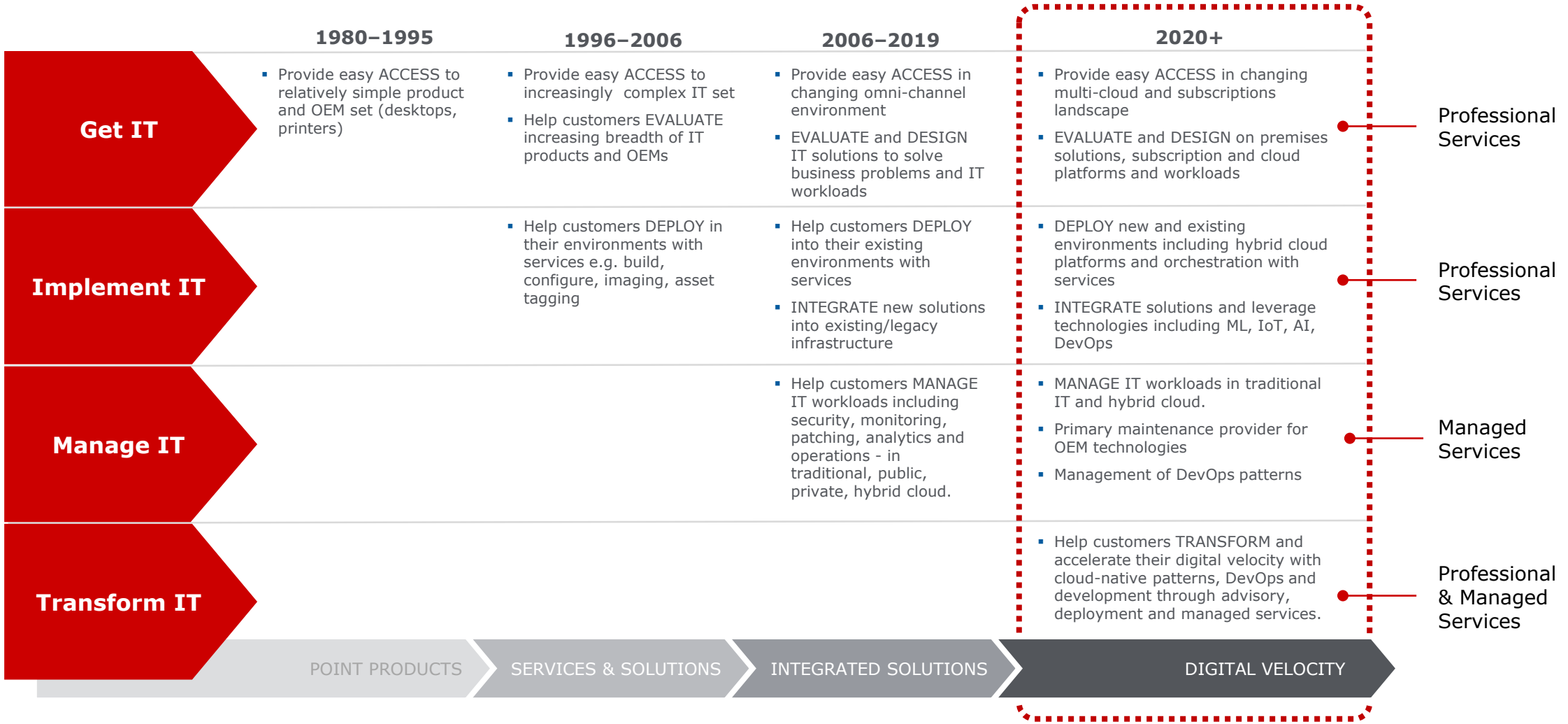
## Puneet Duggal

Cisco Practice Lead, Principal Solutions Architect
9+ years at CDW, 20+ years industry experience
Location: Toronto, Canada
CCDE #20220011

**AREAS OF SPECIALIZATION**

- Software Defined Networking
- Zero Trust Security
- Hybrid Multicloud Infrastructure
- Digital Transformation
- Operations Management

# EVOLUTION OF CDW SOLUTIONS & SERVICES



# Where SD-Access Doesn’t Fit

- Small / Simple Networks
- Lack of Training Budget
- Incompatible HW / Multi-Vendor Strategy
- Highly Specific / Non-standard requirements
- Low Organizational Maturity

# Planning for Success

# Global Networking Trends

### Architecture Transformation

A network platform, integrated partner ecosystem, and digital experience assurance are expected to simplify operations and drive innovative experiences.

### Security Convergence

Converging network and security technologies and workflows are a top priority and a best practice as security concerns expand with continued cloud adoption

### Data Center at Scale

Data center infrastructure modernization is underway to meet AI workload and new application demands at scale

### AI Operations

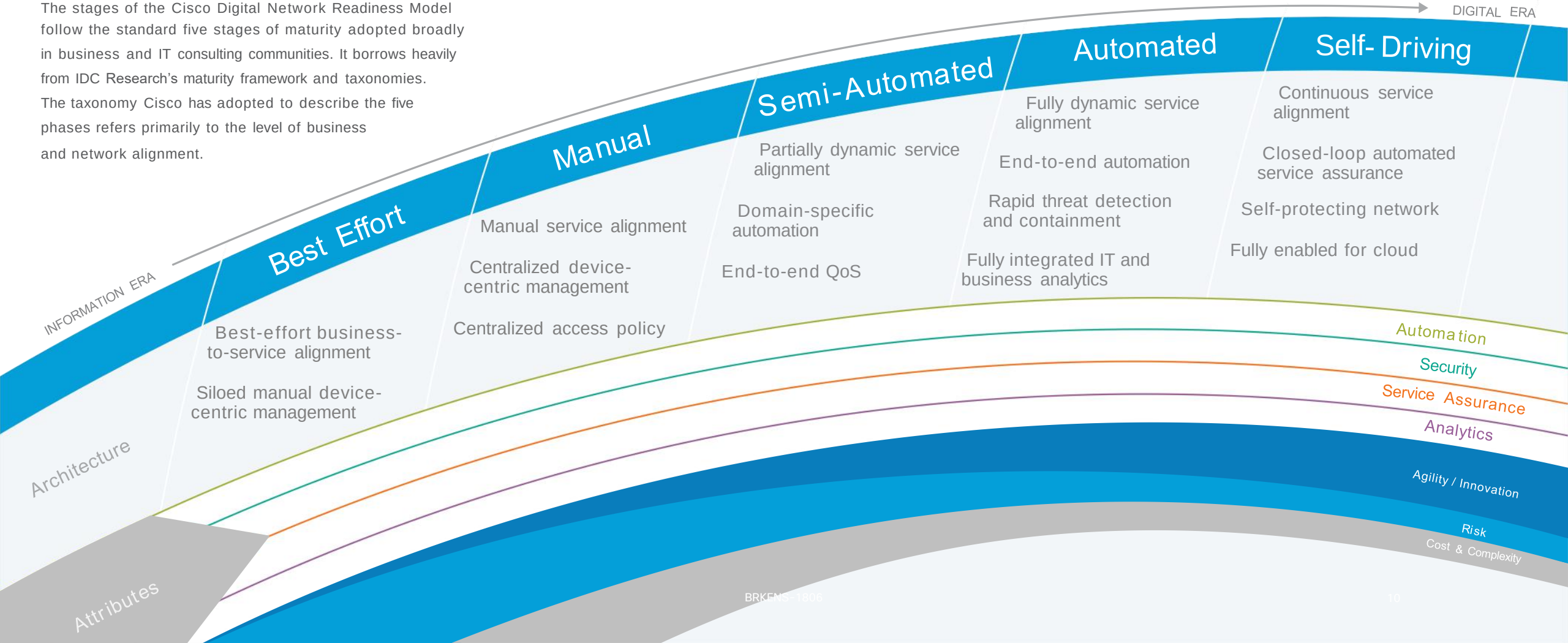
AI-enabled automation is a strategic priority to close the IT skills gap while streamlining operations, assuring digital experiences, and mitigating risk.

### Sustainability Advancement

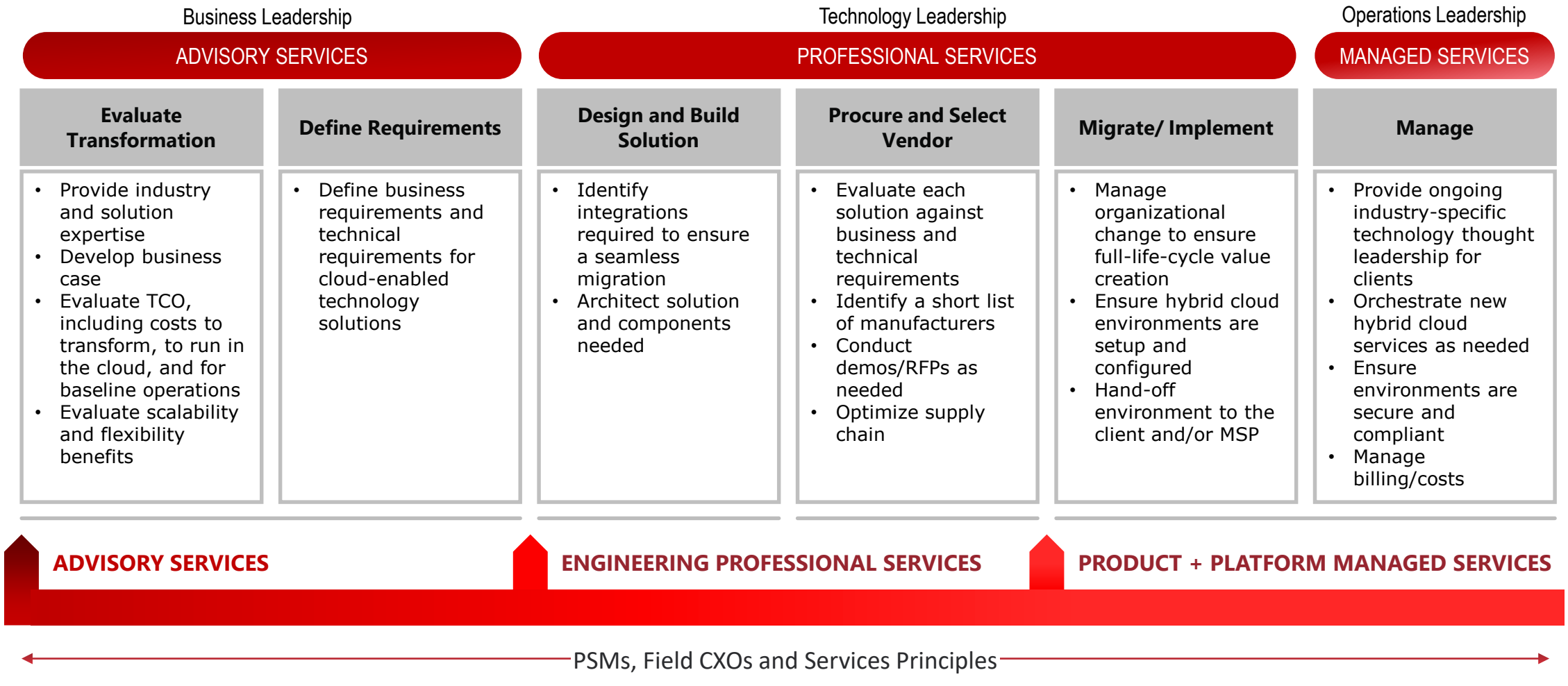
IT is looking to networking platform features that advance telemetry and visibility, and create smart, sustainable buildings to advance net-zero goals

# Cisco Digital Network Readiness Model

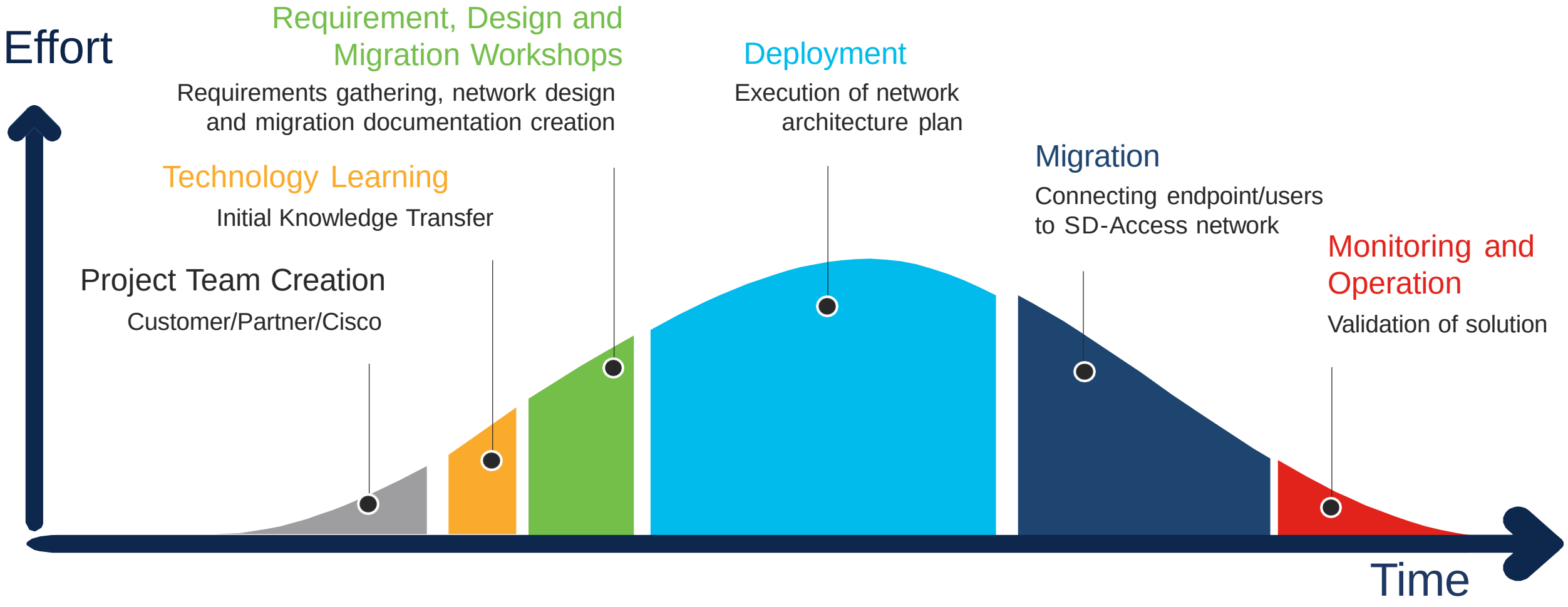
The stages of the Cisco Digital Network Readiness Model follow the standard five stages of maturity adopted broadly in business and IT consulting communities. It borrows heavily from IDC Research's maturity framework and taxonomies. The taxonomy Cisco has adopted to describe the five phases refers primarily to the level of business and network alignment.



# Designed to lead Full Lifecycle Support for High Client Value

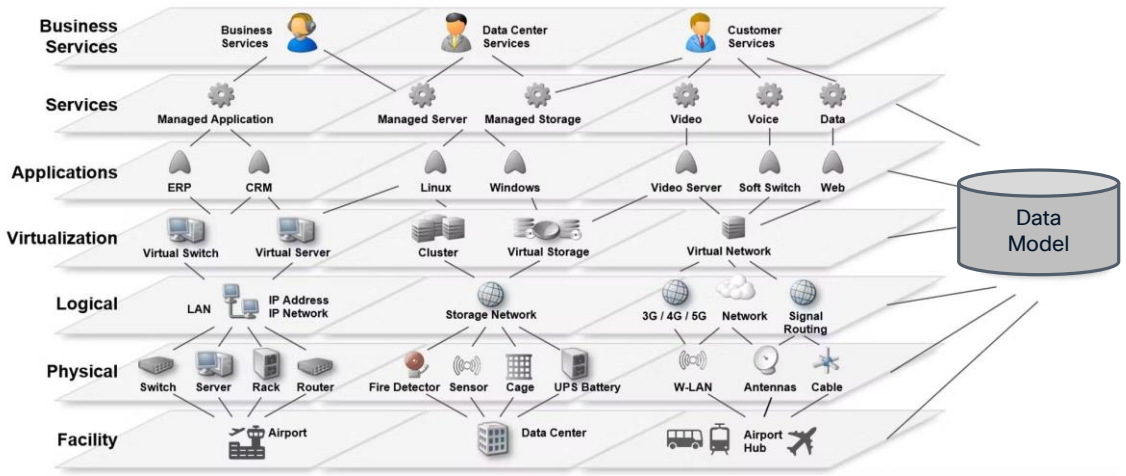


# Stages of an SD-Access Project



# Forming the Fellowship & Understanding the Journey

# Elevating Airport Operations & Passenger Experience




## Business Challenge

- Business growing faster than IT can deliver digital services. Lack of agility
- Increasing Cybersecurity Risks. Limited Segmentation

## Customer Priorities

- Enhanced Security & Compliance
- Superior Passenger Experience
- Increased Operational Efficiency
- Future-Proof Scalability
- Guaranteed High Availability

# CDW Engagement: Strategic Airport Network Design & Modernization

**Foundation for Success: CDW Advisory Services**

- Aligned with Business Goals
- Strong Financial Justification
- Clear Path Forward

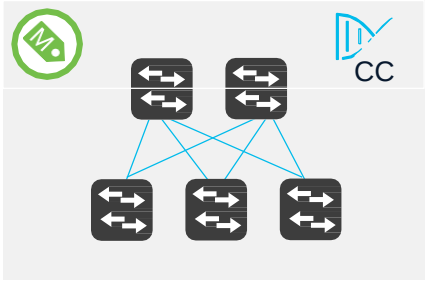
**Key SD-Access Solution Highlights Designed by CDW:**

- Centralized Command & Automation
- Granular Security & Segmentation
- Uninterrupted Operations & Connectivity

**Outcome:** A future-ready, secure, and agile airport network, strategically designed by CDW to meet specific operational demands and business objectives.

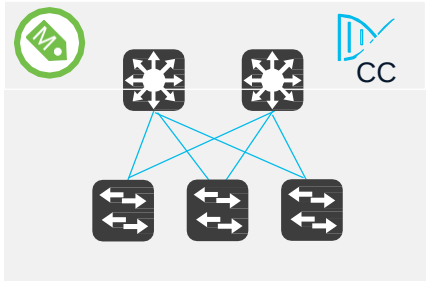
# Enterprise Network Design

## STP / Flat



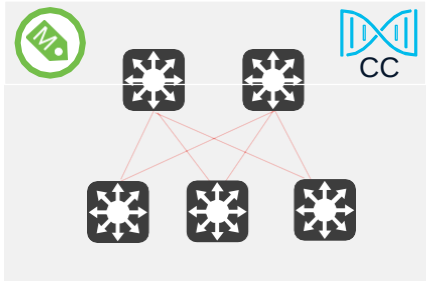

- Flat L2 Vlan Design
- STP
- Gateway outside (e.g Firewall)

## STP / Routed Core



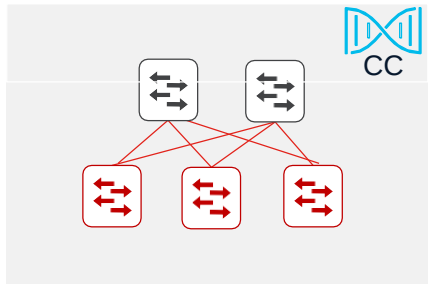

- L3 demarcation at core
- STP
- Gateway inside

## Routed Access



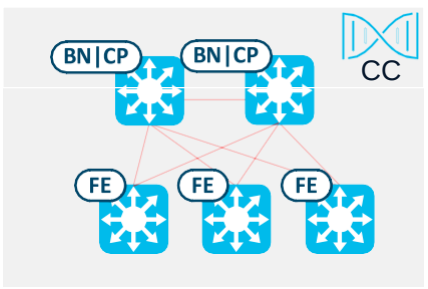

- Every Access switch is a gateway
- Routed
- Not very flexible
- IP address Design difficult

## SD-Access - EVPN




- Fabric (underlay/overlay)
- Automated deployment using Catalyst Center
- Mobility
- Multi vendor support
- WLAN integration

## SD-Access - LISP



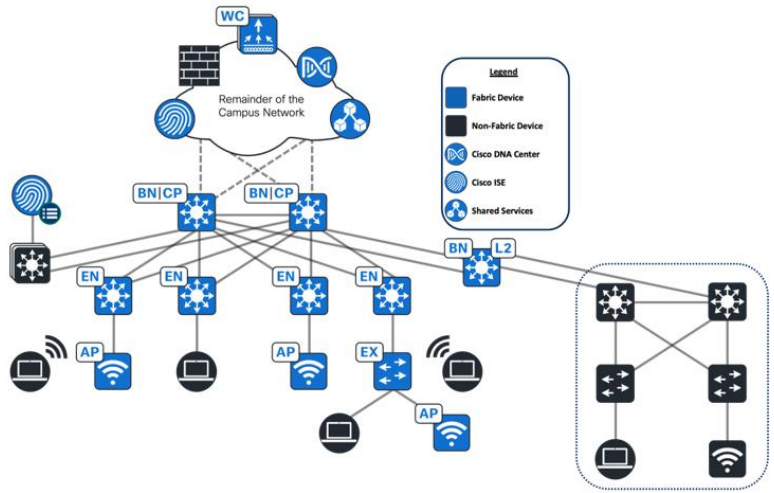

- Fabric (underlay/overlay)
- Cisco's Recommended solution
- Automated deployment using Catalyst Center
- Mobility
- No multi vendor support
- WLAN integration

# Contents

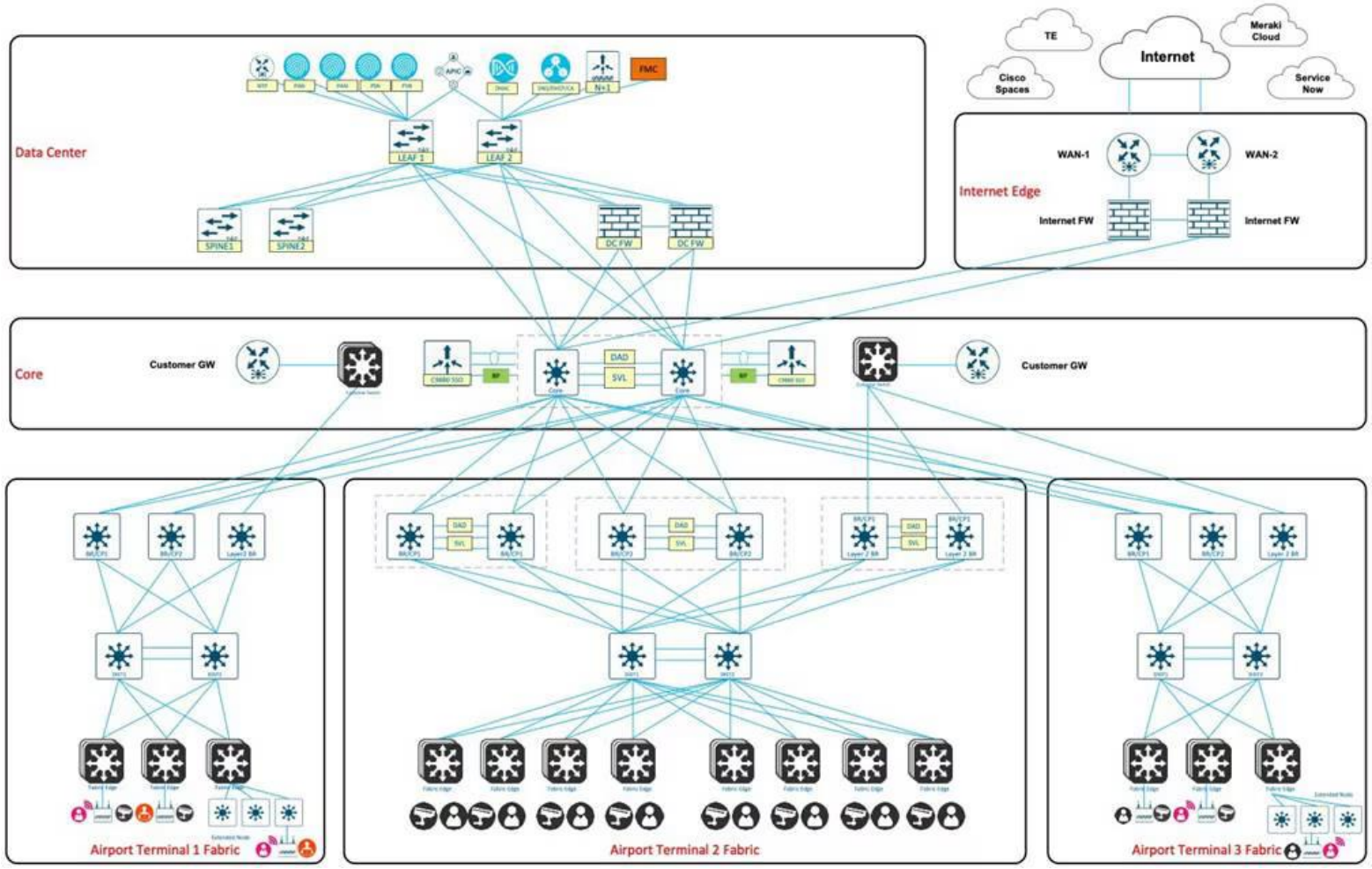


## Proposed Fabric Site Topology

The following topology diagram has been generated based on the answers provided in the Fabric Site Profile section of the Design Tool.



# Airport Customer



# Campus Network Automation

| Cisco SD-Access Capability | Benefit to Airport Client | Quantitative Impact |
|---|---|---|
| **Automate Network Device Deployment** | **IT Benefits:**<br>Secure, scalable, seamless zero-touch provisioning<br>Unified deployment for new/replacement devices<br><br>**Business Benefits:**<br>Faster service/terminal rollouts<br>Reduction in need for specialized on-site installers | • **70%** OpEx reduction<br>• Deployment: **Days → Hours**<br>• **>90%** fewer errors |
| **Automate Software Image Management** | **IT Benefits:**<br>Automated upgrades & patching (less effort, lower risk)<br>Improved PSIRT visibility & compliance enforcement<br>Reduced network downtime (better user experience)<br><br>**Business Benefits:**<br>Aligns IT resources with business priorities via automation<br>Faster service delivery<br>Higher availability for critical airport systems (baggage, flight displays) | • >**75%** faster upgrades<br>• >**90%** fewer outages |
| **Predictive Security and Bug Protection** | **IT Benefits:**<br>Proactively addresses software issues using vulnerability scan & bug identifier.<br>Minimizes unpatched software vulnerabilities.<br><br>**Business Benefits:**<br>Reduces configuration errors & rollbacks (fewer manual steps).<br>Enhances protection for critical airport infrastructure | • **>50%** vulnerability reduction<br>• **20-30%** fewer bug incidents<br>• **35%** more efficient security teams |
| **Network Device Compliance Management** | **IT Benefits:**<br>Centralized configuration & compliance management.<br>Comprehensive checks (device image, configuration, security advisories, EoL).<br><br>**Business Benefits:**<br>Agility for service rollouts & network changes<br>Maintains secure & compliant infrastructure.<br>Ensures adherence to aviation industry regulations | • **>25%** improved audit pass rates<br>• **>50%** faster reporting |

# Building Successfully

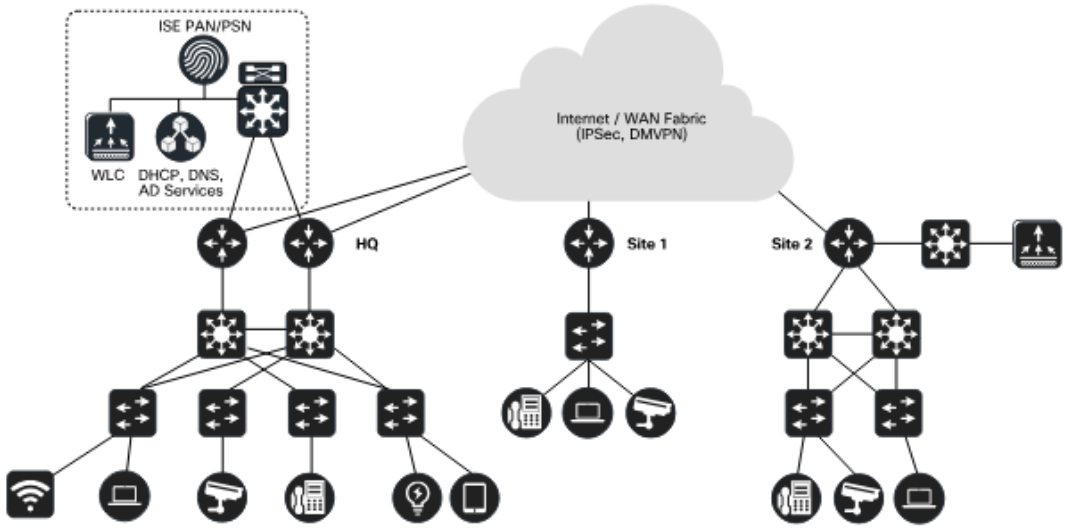
# The Matrix

“You have to see it for yourself”

“I know Kung Fu”

“When you’re ready you won’t have to”

# Transforming Financial Services with Secure Agility




**Business Challenge**

- Siloed & Complex
- Capacity Challenges Leading to Suboptimal Decisions
- Security & Compliance Concerns

**Customer Priorities**

- Achieve and consistently maintain auditable compliance with all relevant financial industry regulations and data security standards.
- Significantly strengthen cybersecurity defenses to protect against data breaches, financial fraud, and other malicious activities.
- Enhance the digital customer experience by ensuring reliable, high-performance delivery of all online and mobile banking applications.
- Improve operational efficiency and reduce the overall cost of network management, security operations, and compliance activities.
- Enable a faster time-to-market for new digital financial products and services to maintain a competitive edge.

# CDW Engagement: Financial Services SD-Access Deployment & Integration

- **Strategic Deployment:** CDW Professional Services led the technical execution, transforming the financial institution's defined requirements into a fully operational SD-Access environment.
- **Meticulous Implementation:** Focused on detailed solution architecture (underlay, overlay, segmentation), seamless integration with existing systems (SIEM, ITSM), and carefully managed migration to minimize disruption.
- **Operational Readiness:** Ensured the client's team was prepared through organizational change management, targeted training, and a comprehensive handoff with documentation and runbooks.

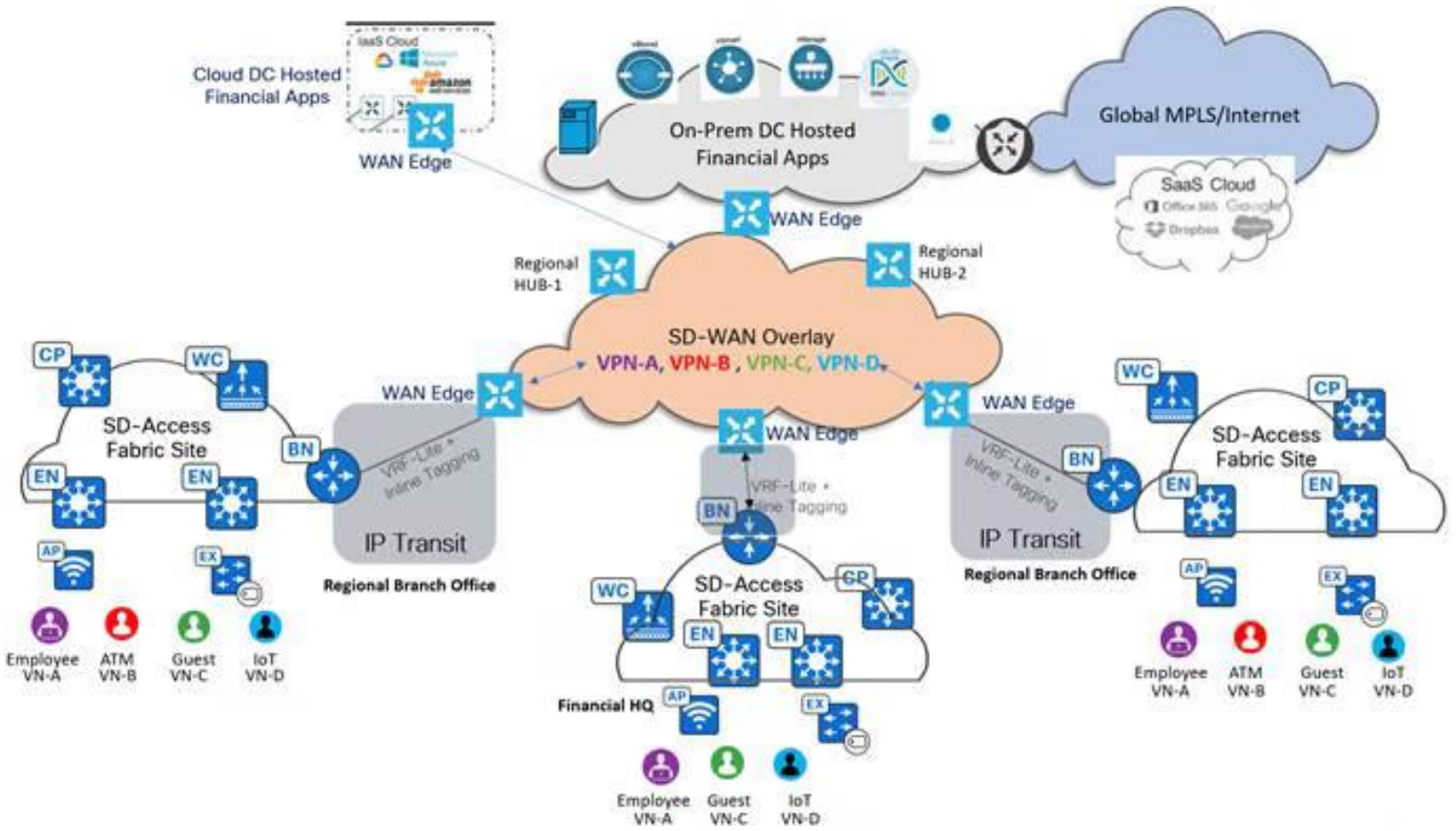
**Key SD-Access Capabilities Deployed for Financial Services:**

- Fortified Security & Compliance
- Optimized Performance for Operations
- Ongoing Optimization & Assurance

# Migration Planning

| **Parallel** | **Incremental (One node at a time)** |
|---|---|
| Best for Branch (small) deployments | Branch or campus (of any size) |
| Requires enough cable runs to create a new parallel network | Requires a couple of cables from new access and distribution switches |
| Power and outlets for a parallel network | Incremental power and outlet requirement |
| Legacy hardware in existing network | Legacy hardware removed gradually |
| Upgrade most of the wired network | Upgrade some of the wired network |
| Clean slate (leave behind any complexity in the old design) | Must carry forward the constraints of the old design in the underlay |
| Test users in a complete new network | Test of functionality is partial |
| Easy rollback of migrated users | Easy rollback of migrated users |

# FSI Customer



# Customer Outcome

## Financial Services Industry

**Innovation**

Faster rollout of digital services & mobile features

Seamless FinTech integration; expanded service portfolio

Enhanced data analytics for personalization

**Agility**

Rapid service provisioning (branches, ATMs)

Quick adaptation to regulatory changes.

**Risk**

Strengthened data protection; reduced breach risk

Improved, auditable compliance; reputation protected

**Experience**

Customer: Higher satisfaction via better digital access

IT Staff: Streamlined operations & faster troubleshooting

# Transforming Successfully

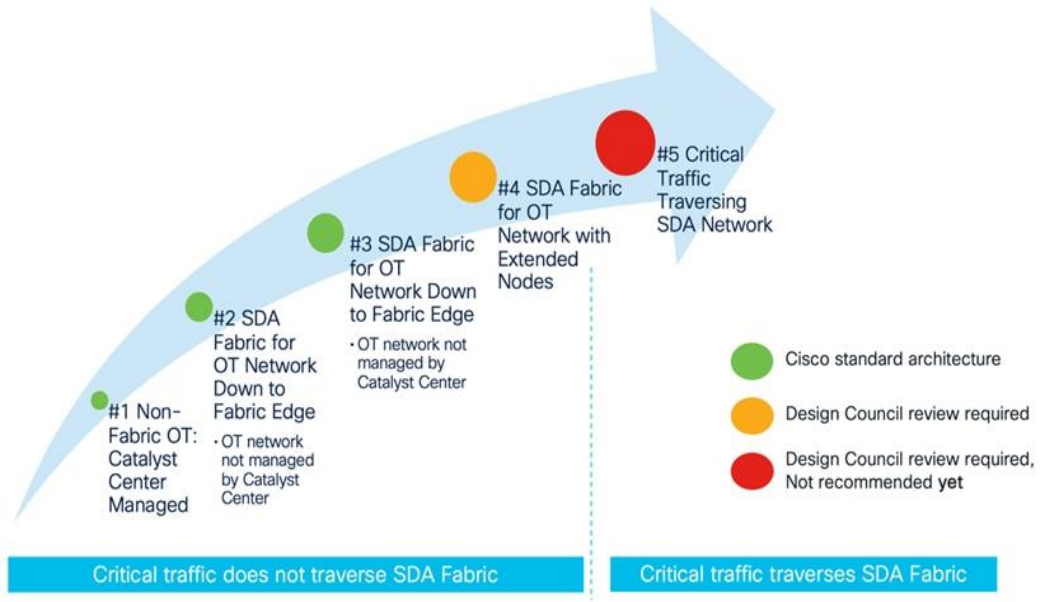
# Back to the Future

“Where we're going, we don't need roads”

“1.21 gigawatts!!!”


“Great Scott!”

# Modernizing Manufacturing for Secure and Efficient Production



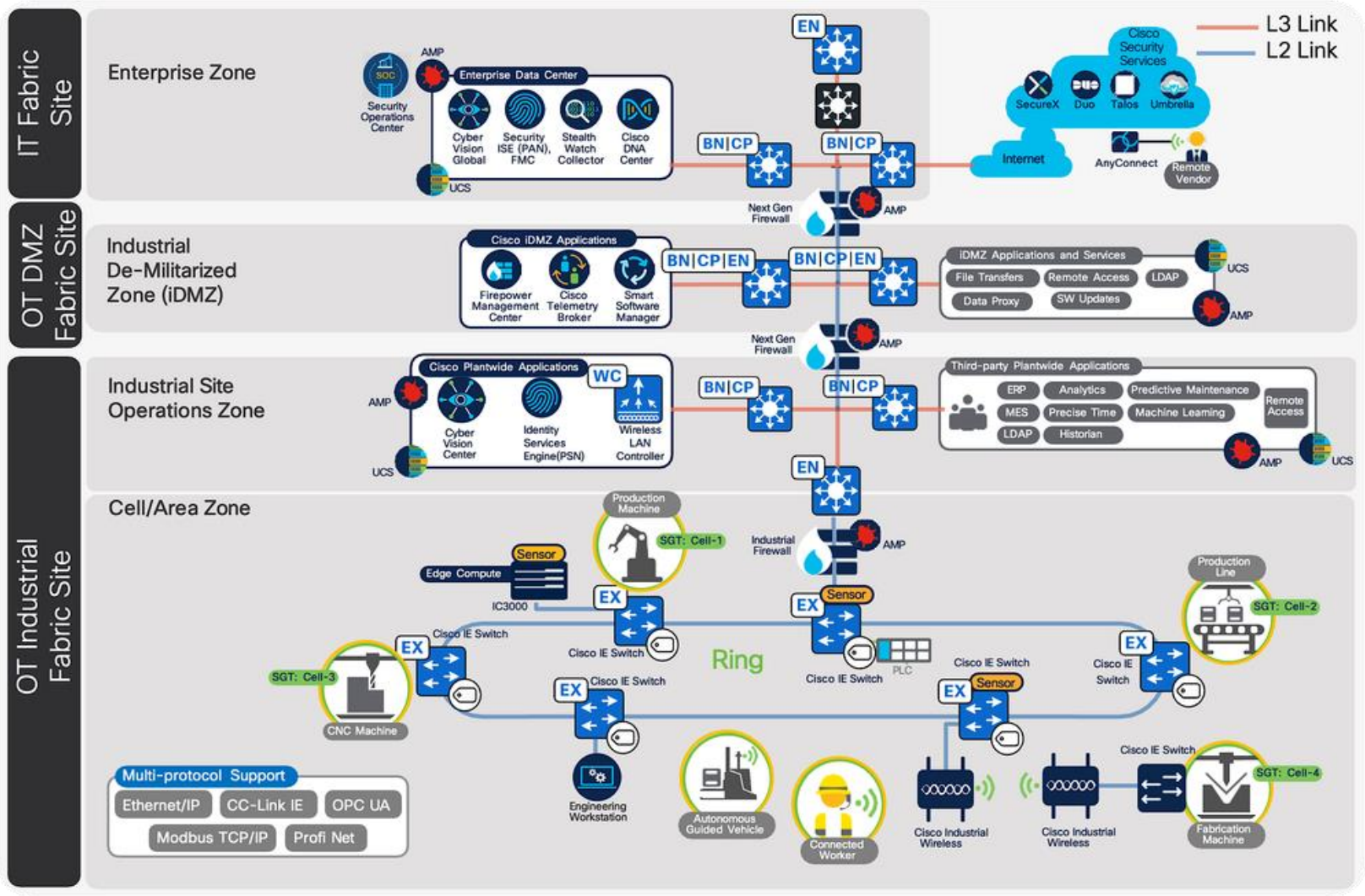

**Business Challenge**

- Fragmented & Isolated Systems: Aging OT networks were disconnected from IT, hindering crucial data collection from plant floor equipment.
- Security Policy Gaps: Difficult to implement consistent, centralized security policies across the disparate environments.
- Lack of Agility: The existing infrastructure couldn't support new IIoT deployments or smart factory applications

**Customer Priorities**

- Enhance the cybersecurity posture of the OT environment, specifically protecting ICS and SCADA systems from cyber threats and ensuring operational continuity.
- Improve operational efficiency and reduce production downtime through better data visibility and the enablement of predictive maintenance.
- Create a secure and scalable network foundation to support the widespread deployment of IIoT sensors and smart factory technologies.
- Simplify network management and ensure consistent policy enforcement across converged IT and OT domains.
- Achieve compliance with relevant industry standards for OT security, such as IEC 62443

# Manufacturing Customer



# Campus Network Observability and Insights

| Cisco SD-Access Capability | Benefits to Customer | Quantitative Impact / KPI |
|---|---|---|
| Health Score for Network, Client, and Application | **IT Benefits:**<br>•Proactive issue prevention for production systems.<br>•Centralized visibility across network, OT/IT machinery, & manufacturing apps<br><br>**Business Benefits:**<br>•Higher uptime for production lines & automated systems.<br>•Reduced need for multiple monitoring tools. | • App Incidents: **41%** ↓<br>• App Degradation Duration: **61%** ↓<br>• Tool Cost OPEX: **10–20%** ↓ |
| Forensic Troubleshooting Capabilities | **IT Benefits:**<br>•Faster root cause analysis for production disruptions (via telemetry & AI/ML)<br>•"Network time travel" for historical analysis without production halts<br><br>**Business Benefit:**<br>•Minimized production downtime due to quicker fixes | • Fault Isolation: >**50%** Faster<br>• MTTR: **40–60%** ↓<br>• Troubleshooting: **5–10** Engineer Hours Saved/Incident |
| Rapid Detection of Network, Client, and Application Issues | **IT Benefits:**<br>Early issue identification (PLCs, robotics, scanners) via Active Sensors, Wireless 3D Analyzer & PoE Analytics, preventing production impact.<br><br>**Business Benefit:**<br>Increased uptime for critical manufacturing lines.<br>Improved IoT data collection (e.g., for predictive maintenance) | • Unplanned Downtime: **86%** ↓<br>• OEE: **5–15%** ↑ |
| Automated Network Provisioning & Segmentation | **IT Benefits:**<br>•Faster deployment/modification of network services for production lines/cells<br>•Consistent policy enforcement<br><br>**Business Benefits:**<br>•Increased agility for factory reconfigurations & new technology adoption | • Network Provisioning Time: **67%** ↓<br>• Switch Deployment Agility: **67%** ↑<br>• Security Breach Impact: **48%** ↓<br>• Audit Prep Time (Segmentation): **50–75%** ↓ |

# Customer Outcome

## Smart Manufacturing

**Cost**

Reduced operational costs via network automation

Optimized resource use & reduced waste through IIoT/smart factory data

**Agility**

Dramatically reduced time for deploying/reconfiguring network services for production lines & equipment

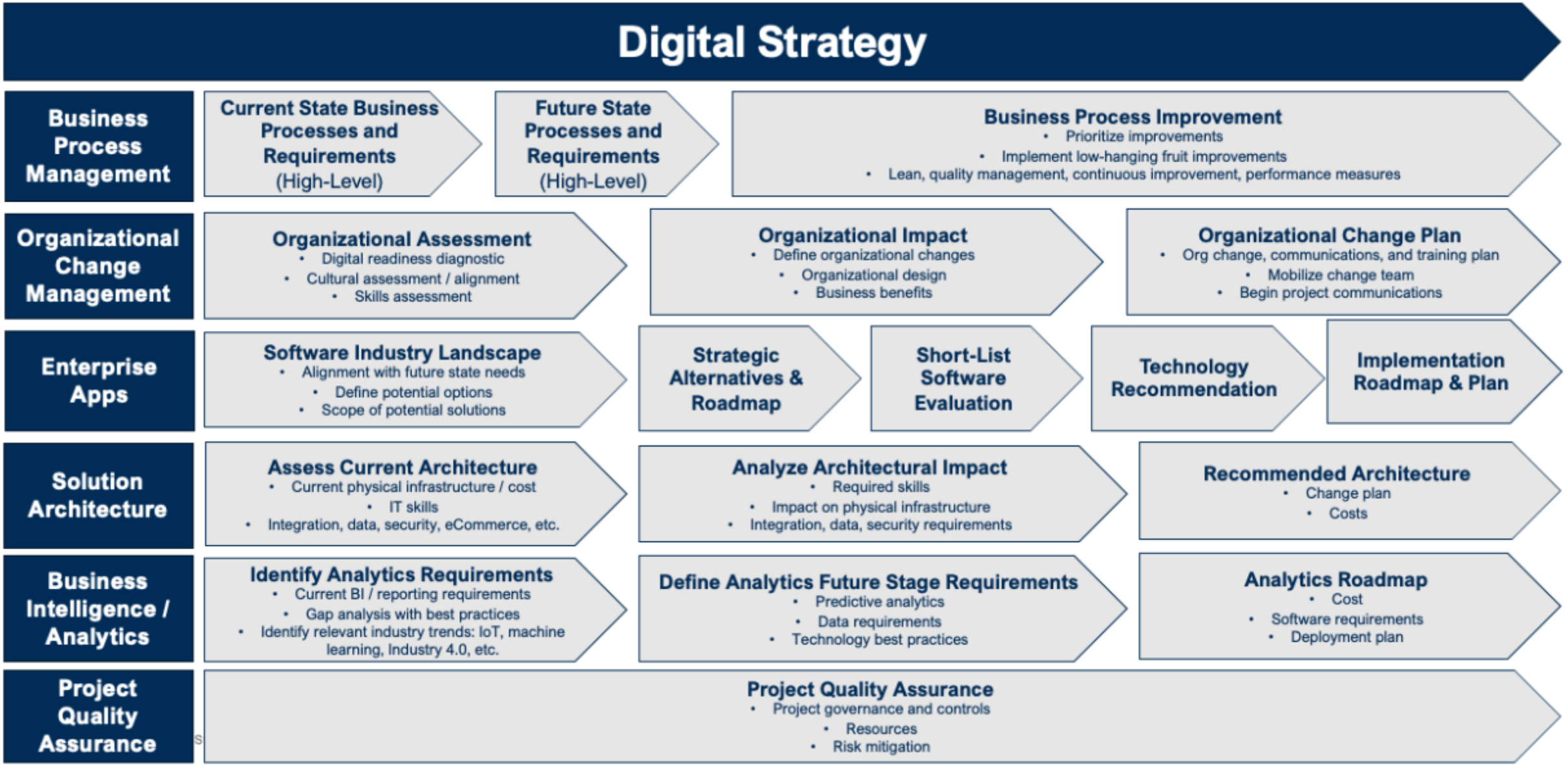
**Risk**

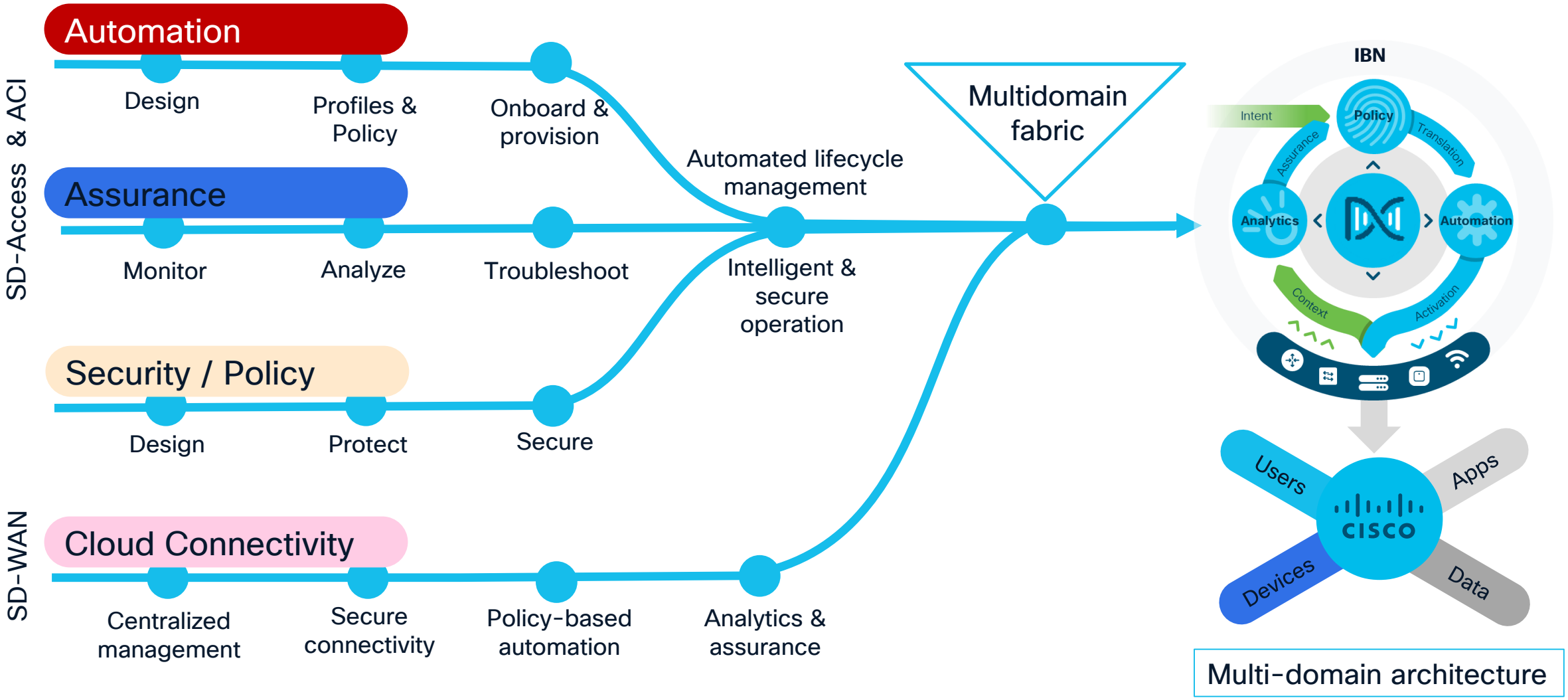
Enhanced compliance (e.g., IEC 62443) via consistent policies, segmentation, and auditability

**Experience**

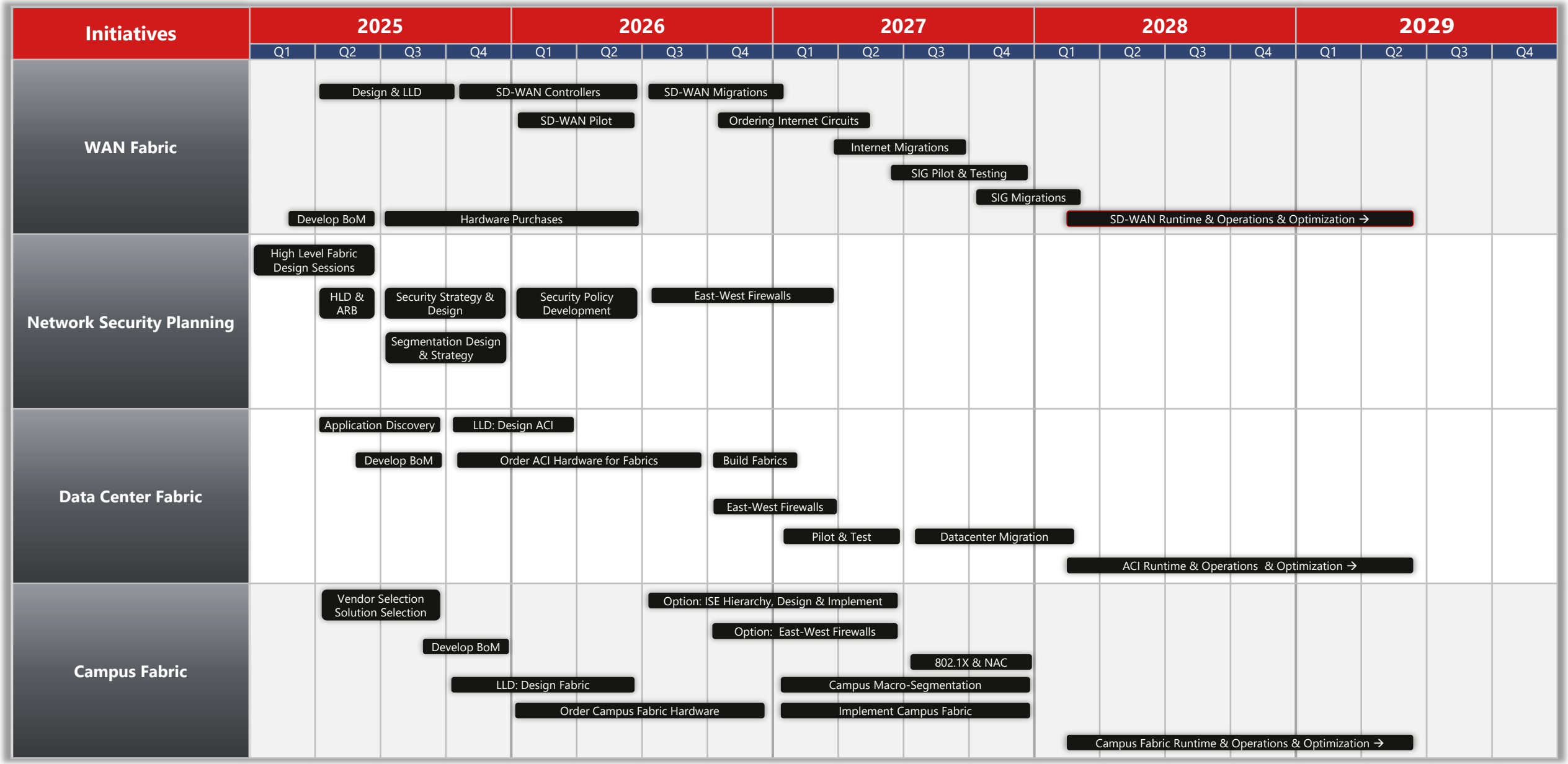
Improved visibility for plant managers/operations into production & equipment health for better decision-making

# Conclusion






Multi-domain architecture



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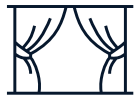

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