



TELECOMMUNICATIONS TRANSFORMATION PROGRAM Network Solutions Supply Chain (NSSC) Industry Day

Overview

Michel Fortin

Director General

*Telecommunications Transformation Program
Transformation, Service Strategy and Design*

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Objectives of Industry Engagement

- Determine the best strategy / approach to :

1

Support intra-building network transformation of wired and wireless (Wi-Fi) infrastructure and services

2

Maintain the existing network equipment and services as transformation proceeds

- Highlight strategies and considerations for future service provision of these services
 - Strategies for Procurement Vehicles (sourcing and supply methods)
 - Consolidation and Migration Strategies
 - Bundling of products/solutions/services
 - Consideration for including additional services
- Solicit input and feedback on key questions



1

TRANSFORMING INTRA-BUILDING NETWORK SERVICES



Strategic Context

- SSC will be transforming network infrastructure in buildings at more than 3,580 sites nationally and internationally

INTRA-BUILDING CURRENT STATE

- ▶ 3580+ Sites
 - ▶ 495 multi-tenant buildings
 - ▶ 4000+ Local Area Networks
- (61 “large” buildings (1000+ pop))



Today, the network infrastructure within GC-occupied buildings is generally GC-owned and operated for Local Area Network support. It is also not shared between departments, resulting in duplication of infrastructure and its associated costs

Intra-building Network Components

The components of the Intra-building network transformation are:

WIRED LAN SERVICE



- Shared and modernized infrastructure at 495 multi-tenant buildings will be consolidated
- Simplified support and management

WiFi NETWORK & SERVICE



- Improved employee mobility / productivity & supports Blueprint 2020
- Supports voice, video and data
- 80% of user will have WiFi access by 2020

CABLING SERVICE



- Wired infrastructure – will continue to be required for vertical cabling, data centres, wireless access points and connections requiring wiring

**In scope for
Network Solutions Supply Chain (NSSC)**

Out of scope for NSSC

Current State – Network Equipment Support Services

The Network Equipment Support Services (NESS) standing offer is used to procure **new network equipment and support services** (including a one-year warranty and optional installation) from qualified offerors for the following classes of equipment:

Each “call up” against NESS is on a per category basis

1.0	LAN Switches	8.0	Multi Class Equipment (unified threat management network equipment)
2.0	Routers	9.0	Wireless Systems
3.0	Layer 4-7 Devices (application switches)	10.0	Intrusion Prevention System
5.0	Intrusion Detection Systems	11.0	Uninterruptible Power Supply
6.0	VPN Appliances	12.0	Common Requirements (across all classes)
7.0	Optical Networking Devices		

Note: Class 4.0 Firewall was deleted and is incorporated within 8

Current State – Network Infrastructure Management Services

- Network Infrastructure Management Services (NIMS) standing offer is used to procure the **maintenance of network hardware and software** in the following areas:

- Network Equipment
- IT Security Equipment
- Multi-Functional Devices
- Application / Software
- Specialized Device

All classes of NESS are included within NIMS, but NIMS is limited by the subset of OEMs that are qualified offerors

- Maintenance services include the necessary hardware, software and resource support for the **fault restoration, ongoing functional operation and preventative maintenance** of products; 3 types of maintenance plans:

1> REPLACEMENT:

Offeror is required to **acquire and deliver the replacement component** to a technical contact in an identified timeframe

2> ON-SITE REPLACEMENT:

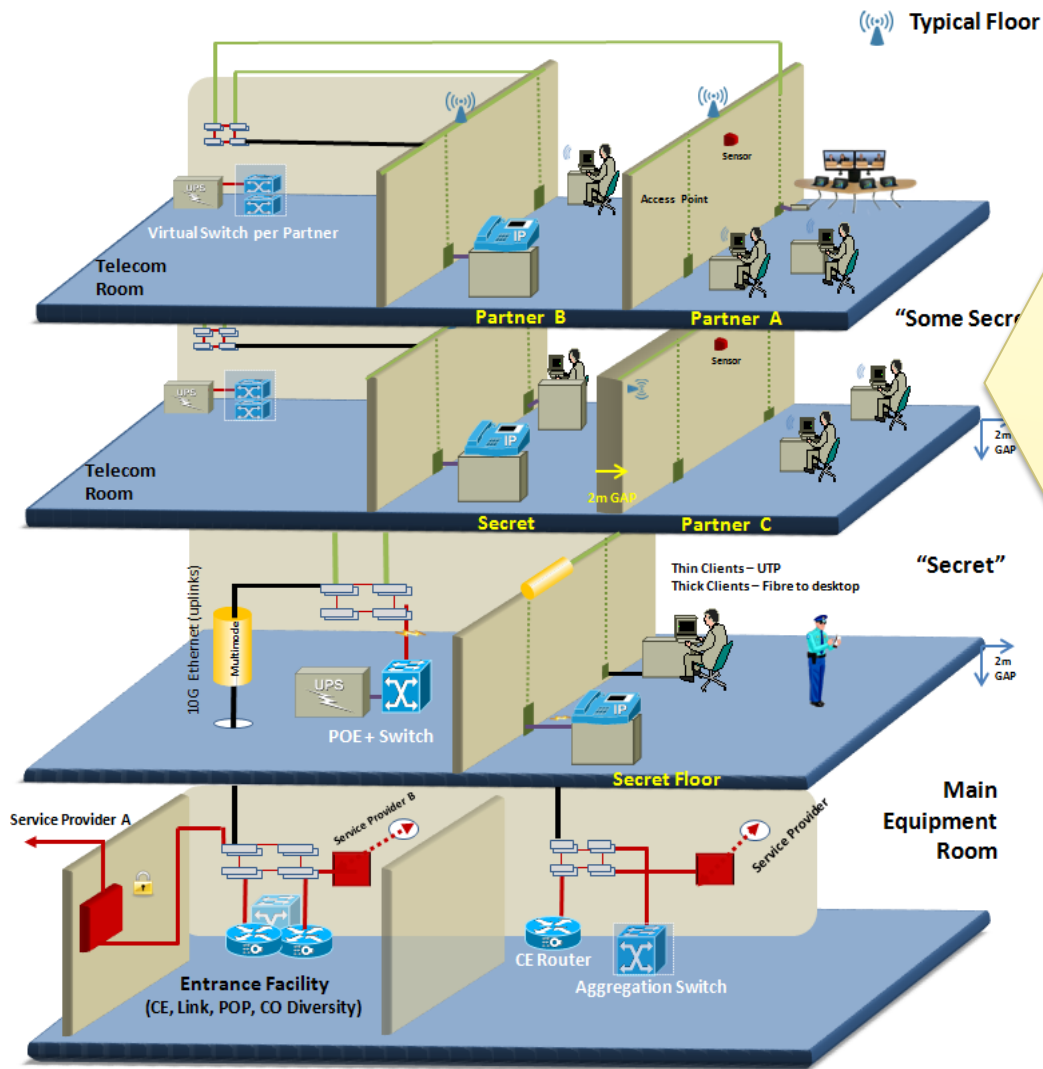
Offeror is required to **acquire / deliver and install the replacement component on-site or undertake whatever maintenance** and repair service that is necessary to restore the product to operational service

3> RETURN TO DEPOT:

Offeror is required to **receive** the faulty product, **repair or replace** the product and **ship** the repaired or replaced product back to the site

Target State - Building View

Typical Building Profile



General profile

- Combination of wireless and wired infrastructure
- Some buildings will have SECRET systems (require more cabling and limit WiFi)
- Multi-tenant buildings will share network equipment
- VoIP (hard and soft phones) and/or cellular/smartphones
- Desktop videoconferencing
- Sharable VC rooms

Key Challenges – Network Solutions

KEY CHALLENGES

- Existing NESS does not support transformation well because it is equipment-specific as opposed to solutions oriented
- Too many different items in the catalogue
- Interoperability is challenging between multiple OEMs (ie. OEMs implement customized “open standards” which are not always interoperable with other OEMs without loss of functionality)
- Standards are used differently across many networks
- Consolidation of partner / business domains with differing security and privacy considerations
- Support to remote and international locations
- Executing transformation while maintaining the existing infrastructure and services

Guiding Principles – Network Solutions

GUIDING PRINCIPLES

- Technology based **open architecture** and **industry standards** to ensure **flexibility and interoperability** between existing and future services
- Must be **scalable** and **future-proof** (e.g. support Software Defined Network framework)
- Must support **multi-tenancy** (traffic isolation differentiated by partner) and secure, controlled access to data
- Must support **centralized management, configuration** and **reporting**
- Must ensure information is handled using the appropriate controls, protocols and infrastructure to support the **required level of security**
- Network must support a **self-serve model** for data centre services
- Provide **best value** and **total cost of ownership (TCO)** for the operations and management of services

2

MAINTAINING EXISTING NETWORK SERVICES AND EQUIPMENT



Maintaining Existing Network Services and Equipment

CURRENT STATE

- To ensure ongoing support of GC Department and agencies, the existing network infrastructure must be maintained during transformation
- Existing supply arrangements (e.g. NESS) are used to maintain existing network and IT security infrastructure (including Top Secret)
- Supply arrangements support all of Government of Canada
- Ongoing requirement to procure network and IT security products and services
- NESS and NIMS will be replaced with procurement vehicles which will support transformation

High Level Requirements

- Provide the ability to procure the following classes of network products/components and/or services:
 - Wired Switches
 - Wireless Networking
 - Routers
 - Application Delivery Networking Products
 - Firewalls, *including Deep Packet Inspection*
 - Forward and Reverse Proxy
 - Intrusion Detection and Prevention, *including network, host & wireless*
 - URL and Content Filtering, *including whitelisting, blacklisting*
 - Optical Networking Devices
 - Network Monitoring and Management
 - Specialized Networking
 - Anti-Virus / Malware / Spyware
 - Anti-Spam / Anti-Phishing
 - Link Layer Security/VPN (IPSec, SSL, TLS)
 - Data Loss Prevention
 - Vulnerability Assessments
 - Network Forensics & Analysis

Considerations

CONSIDERATIONS

Ensure support for:

- Varying service levels across SSC partners and clients
- Partner and client specific Security Requirements (e.g. Public Safety, Correctional Services, National Security)
- High availability and fault tolerant standards must be maintained, with minimal downtime for maintenance schedules, to ensure continuous levels of service for mission critical applications
- Network Access Control, Network Encryption Layers, Network Policy Management
- Virtualized environments
- Malware execution in Advanced Persistent Threat Detection (APT), including detection of DNS-based malware

**KEY DISCUSSION TOPICS
AND
QUESTIONS FOR INDUSTRY
FEEDBACK**



Strategies for Procurement Vehicle

SSC is trying to determine the **strategy** that will provide the **best value** and **lowest total cost of ownership** (TCO) for the GC to deliver transformed Intra-Building network services while maintaining existing network services and providing standard levels of service.

Factors to consider for Procurement Vehicles:

A SOURCING STRATEGY:

- Out-source
(fully managed)
- Hybrid
- In-Source

B SUPPLY METHOD:

- Supply Arrangement (SA)
- Standing Offer (SO)
- Contract

C SUPPLIER STRATEGY:

- Worldwide
- By region
- Varies by site

D PRODUCT (HW/SW) SOURCING METHOD:

- Buy
- Lease
- Bundled with services

E PROCUREMENT CONSIDERATIONS

VARIATION BY OEM ?

- One for all categories
- One per category
(LAN, WiFi, etc.)

VARIATION BY GEOGRAPHY?

- Nationally/ Worldwide
- By region
- Varies by site

1. What are the **benefits, technical challenges, requirements** and **recommended pricing model** for successful deployment and ongoing support of each deployment model?
2. Which sourcing strategy would you recommend?

Outsourced / Fully Managed

Third parties design, provide and operate the solution(s) through a managed service

EXAMPLE:

Vendor provides the end-to-end network solution based on the requirements provided

Co-Managed / Hybrid

SSC in-house resources deliver parts of the service on GC-owned infrastructure while the remainder is delivered by a third party vendor

EXAMPLE:

Vendor A provides the design, Vendor B provides the equipment / infrastructure and SSC in-house resources operate

In-sourced / In-House

Design and deliver the solution by in-house SSC resources using SSC acquired infrastructure components

EXAMPLE:

Buy the equipment / infrastructure, and SSC in-house resources build and operate solutions

1. What supply methods would you recommend to support intra-building network transformation, and why?
2. If contract, what contract period would you recommend ?

▶ Contract

- **A voluntary, deliberate, and legally enforceable agreement** between two or more competent parties
- Each party to a contract acquires rights and duties relative to the rights and duties of the other parties

▶ Standing Offer

- **An offer from a potential supplier to provide goods and / or services at pre-arranged prices, under set terms and conditions, when and if required**
- Not a contract until the government issues a "call-up" against the standing offer.
- The government is under no actual obligation to purchase until that time

▶ Supply Arrangement

- **A method of supply to procure goods and services**
- Not a contract and neither party is legally bound as a result of signing a supply arrangement alone
- Includes a set of predetermined conditions that will apply to bid solicitations and resulting contracts
- Allows government to solicit bids from a pool of pre-qualified suppliers for specific requirements

1. Which supplier strategy would you recommend?:
(ie. a single supplier nationally, by region or by site? or continuation of a model with potentially varying resellers/OEMs for each procurement of products?)
2. What are the pros and cons of each option?

WORLDWIDE/NATIONAL



One prime supplier to transform all sites worldwide

SUPPLIER BY SITE



A site could be:

- Campus
- Military base
- DCN
- Remote sites
- Etc.

SUPPLIER BY REGION



Suppliers will transform the sites within respective regions

Allows suppliers to vary by site based on site requirements and complexity (e.g. small, medium, large sites)

There are various sourcing methods available including leasing/procuring managed services, buying or leasing products with in-house services:

1. Which categories do you recommend that we lease services rather than buy/lease products and perform services in-house?
2. In the case that products are acquired do you recommend that they be bought or leased? Why?
3. What are the pros and cons of each option: **buy** vs. lease vs. bundle with services?

LEASE SERVICES **VS** BUY PRODUCTS ? **VS** LEASE PRODUCTS? **VS** BUNDLE PRODUCTS WITH SERVICES?
(BUY ENTIRE SOLUTIONS)

Products/solutions can be procured or leased from a single or multiple OEMs:

1. For each service category (eg. Wired LAN, WiFi, etc), do you recommend that products/solution sets be procured entirely from the same original equipment manufacturer(OEM)?
2. In the case of multiple OEMs, which types of solutions/products (eg. LAN switches, routers, etc) will be easy/challenging to integrate between various manufacturers' products? Which industry standards should be adopted to improve interoperability?

**SINGLE ORIGINAL EQUIPMENT
MANUFACTURER (OEM)
("UNIFORM")
BY SERVICE CATEGORY**

VS

**MULTIPLE ORIGINAL EQUIPMENT
MANUFACTURERS (OEMs)
("BEST IN CLASS")
BY SERVICE CATEGORY**

Products, solutions and services can be procured for all locations, by region or even by site:

1. For each solution/service type, which model would you recommend (i.e. procure the same solution set/service provider for all locations, for each region or for every site? Why?
2. Should products and/or services international locations be procured separately?

Options	Region X		Region Y		Etc...
	Building 1	Building 2	Building 3	Building 4	Building X
▶ All locations	OEM A	OEM A	OEM A	OEM A	OEM A
▶ Supplier by Region	OEM A	OEM A	OEM B	OEM B	OEM X
▶ Supplier by Site	OEM A	OEM B	OEM B	OEM C	OEM X

Consolidation and Migration Strategies

Discussion
Topic

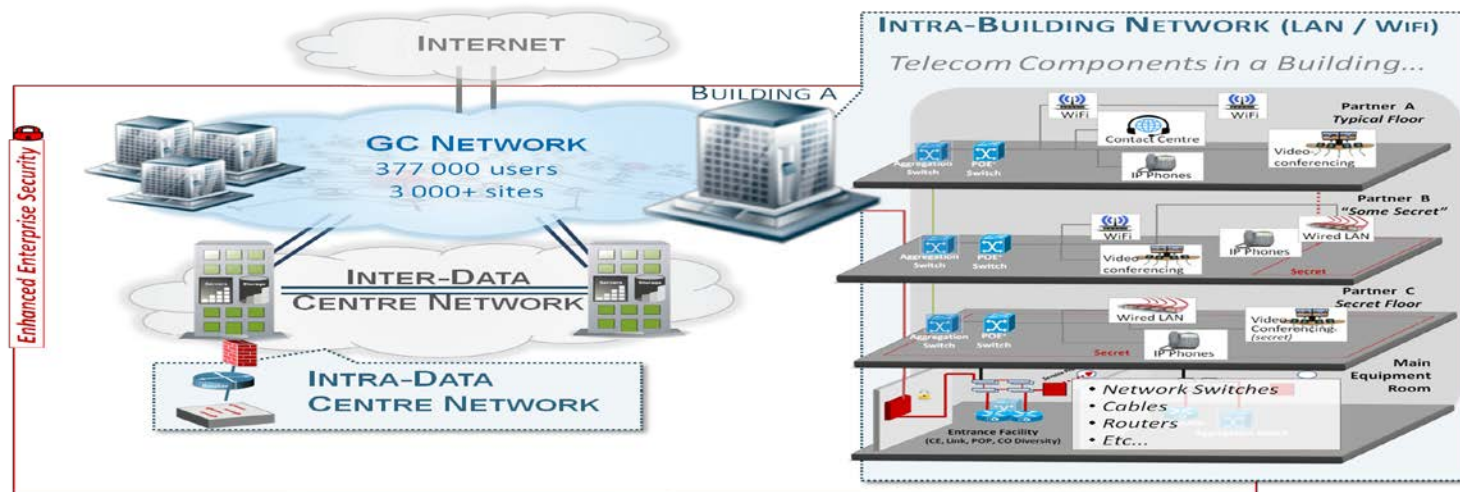
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SSC will be using a building-by-building approach for telecommunications services delivered inside buildings (eg. network, voice and videoconferencing services)

Are there strategies that you would recommend to:

1. Minimize user disruption and maximize resource efficiency during the roll out phase of these initiatives?
2. Are there migration strategies which you would recommend to migrate and consolidate the various partner domains (workload migration, overlapping network addressing, etc.) particularly within a multi-tenant environment?

HOW THE TELECOMMUNICATIONS COMPONENTS FIT TOGETHER



There are many products, solution sets and/or services which could be bundled together.

1. Which products, solutions and/or services would you recommend bundling together? (e.g. should routers and firewalls be bundled together) Why ?
2. Should network and security products be procured together?
3. In the case where product/solutions are procured, should maintenance (beyond the warranty period) be bundled together or procured separately?

Considerations for including additional services

- Recently, SSC held an Industry Engagement on Inter and Intra Data Centre Network services, to gather valuable feedback on the approach for delivering the DCN services
- Based on the feedback received, SSC is considering the option of including the Inter and Intra DCN services within the scope of the NSSC procurement vehicle, to **enable the flexibility of defining a hybrid model**
- Should NSSC procurement vehicles include products/solutions related to Data Centre Networks or should these be procured separately ?
- Should other categories of products such as videoconferencing products be included in NSSC? If so, which ones would you recommend including ?

Health Break



Key Questions for Industry Feedback

STRATEGY

SSC is **seeking a strategy** that will enable the GC to cost-effectively deliver transformed Intra-Building network services. The following are areas of consideration:

- A. Sourcing Strategy:** What is the recommended sourcing model for intra-building network services (**Out-sourced service, Hybrid or In-sourced**)? What are the benefits, technical challenges, requirements and recommended pricing model for successful deployment and ongoing support of each deployment model?

- B. Open Standards:** Which standards should be adopted to ensure interoperability between different OEMs? Which ones should be avoided? Are there areas where interoperability between OEM products is challenging? Are there situations where a single OEM model would be recommended? Which type of equipment where OEM variation could be considered by region/site? What are the integration/interoperability implications of each option?

Key Questions for Industry Feedback (continued)

- C. Bundling:** Which services or group of products should be bundled together when procuring a solution? Should other areas such as videoconferencing endpoints and data centre networks be bundled in or kept in separate procurement vehicles?
- D. Buy vs Lease:**
Should the products/services be procured or leased? What are the pros and cons of each option: **buy** vs. **lease** vs. bundle with services?
- E. Supplier Strategy:** What supply method would be optimal to achieve best value/lowest TCO and interoperability? Should certain products/solutions be bundled into a single contract/supplier/service provider over a long period (ie. years) ? If so, for how long? Should this be separated by region? For services, should single or multiple service providers be considered? What are the pros and cons for each option?
- F. Transformation Strategy:** What are some key considerations/strategies in consolidating networks? What procurement strategies were used in these cases? (i.e. integrators, service providers, buy/lease. Provide examples, use cases, white papers, etc.

Additional Questions for Industry Feedback

OPERATIONAL/TECHNICAL:

1. What support model would you propose for a site once it has been transformed, considering both the multi-tenant and single tenant site?
2. What are the strategies, technical considerations and challenges for ensuring smooth integration with Integrated Command Centre (DOC/NOC/SOC) and other enabling foundational services (DNS, DHCP, ICAM, etc.)?
3. What are the possible technology or service enhancements over the coming years that we may need to consider in our requirements? How can emerging trends/technologies be incorporated into the proposed solutions? How can we keep technologies up to date given the length of transformation? How could they contribute to the Savings, Security and Service objectives?

Additional Questions for Industry Feedback (continued)

OPERATIONAL/TECHNICAL:

4. What value-added services would you recommend that we should be incorporating? For example Videoconferencing services and Data Centre Network services (Inter & Intra) be bundled within the same procurement vehicles as those related to Network Solutions Supply Chain.
5. What are the perceived barriers to success and risks that require mitigation strategies?
6. Please provide strategies/input on how SSC could best achieve the use of current generation products and future generation products throughout the lifetime of the procurement vehicle(s).

Additional Questions for Industry Feedback (continued)

OPERATIONAL/TECHNICAL:

7. How should SSC approach product substitutions in future procurement vehicles?
8. Notwithstanding the requirements that have been identified today, please provide insight and advice on how to best ensure ongoing manufacturer supply chain integrity.
9. Please provide your views how to best integrate network security into the proposed solutions/services, while keeping aligned with technological enhancements that address the evolving threat landscape?

Additional Questions for Industry Feedback (continued)

PROCUREMENT:

1. What strategy would you propose to improve procurement and lower costs?
2. SSC recognizes that many different pricing models can be used to achieve value to the Crown. Given the requirements outlined, please suggest various pricing models that could be used for the different sourcing options.
3. Should future procurement vehicles include categorization as currently exists within the Network Equipment Support Services (NESS) procurement vehicle or should a solutions-based approach be pursued? What approach would you propose for future procurement vehicles?

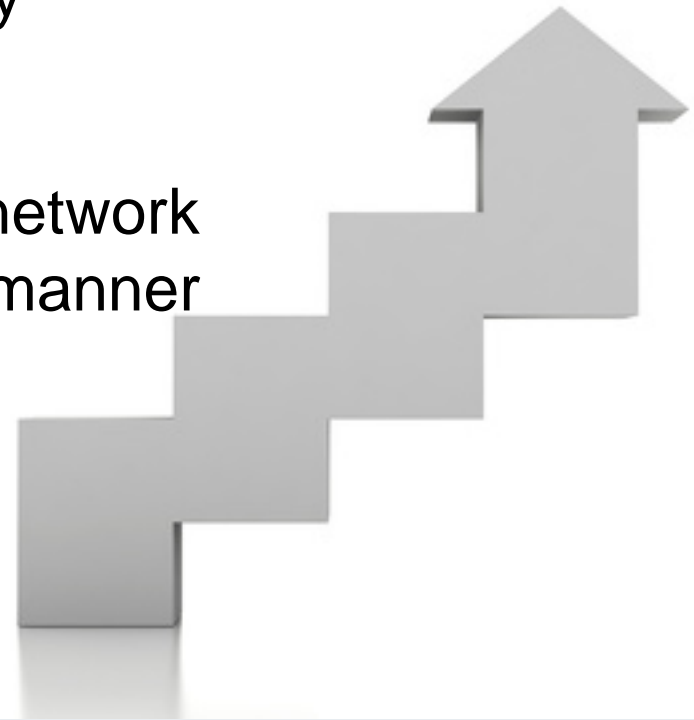
Additional Questions for Industry Feedback (continued)

PROCUREMENT:

4. Provide recommendations for requirements to maximize competitiveness and reduce the TCO. What are the factors that drive rates up?
5. What are the industry standards for wired and wireless services should be included as part of requirements in future procurement vehicles?
6. Should products/services for international locations be procured separately? If so, why?

Next Steps

- Industry feedback on discussion topics and questions to be received by June 13, 2014
- Evaluate input / feedback received to refine procurement and sourcing strategy
- Proceed with the procurement of network solutions supply chain in a timely manner



Wrap Up and Questions

Questions?
(for Suppliers only)

