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Shared Services Canada • Data Centre Consolidation Platform & Infrastructure Services

*Industry
Engagement
Day*

July 17, 2013



Shared Services
Canada

Services partagés
Canada

Canada 

Industry Engagement Day: Key Messages

*“Engaging with others outside our institution—other levels of government, **industry**, academia, non-governmental organizations, and individual citizens—is also essential to our work. These diverse partners can **help to identify and implement practical, effective solutions that get results**. We need to develop our policies, programs and services with people, not just for them.”*

Source: [Twentieth Annual Report to the Prime Minister on the Public Service of Canada](#)

- The strategic outcomes for Shared Services Canada (SSC) are to *generate savings, increase security, and improve service*
- Strategies to achieve these outcomes include *consolidation, standardization, and transformation*, including development of *sourcing strategies* and incorporating *security by design* strategies
- With regard to sourcing strategies, SSC Transformation will engage industry to explore options to implement these strategies and achieve its desired outcomes

Industry Engagement Day: Objectives

- Share plans with industry suppliers and engage in a dialogue regarding Data Centre Platform and Infrastructure services and Service Delivery Options
- Explain the proposed “Collaborative Procurement Solutions” approach
- Address Supply Chain Cyber Security Threats
- Elicit feedback from industry on Service Delivery, High Availability, Contract Period and Pricing Options



Industry Engagement Day: Agenda

TIME	SPEAKER	DESCRIPTION
09:45 - 09:50	TBD <i>MC</i>	Opening Remarks & Objectives
09:50 – 10:15	Benoît Long <i>SADM, Transformation, Service Strategy & Design, SSC</i>	SSC Transformation Overview
10:15 – 10:45	Peter Littlefield <i>DG, Data Centre Consolidation Program, SSC</i>	Data Centre Platforms & Infrastructure Overview
10:45 - 11:00	Break	
11:00 - 11:30	Stéphane Richard <i>Senior Director, Information Technology Procurement, SSC</i>	Collaborative Procurement Solutions Approach
11:30 – 12:30	Patrick Mountford <i>Director, Cyber Security Strategy, Cyber and IT Security Transformation Program, SSC</i> Carey Frey <i>Director, IT Security Strategic Relationships Office, Communications Security Establishment Canada</i>	Supply Chain Integrity
12:30 – 12:45	TBD and Speakers <i>MC</i>	Questions and Answers
12:45 – 13:00	Peter Littlefield <i>DG, Data Centre Consolidation Program, SSC</i>	Recap / Closing Remarks



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Shared Services Canada • Data Centre Consolidation Industry Engagement Day

Transformation Overview

Benoît Long

Senior Assistant Deputy Minister

Transformation, Service Strategy and Design

Shared Services Canada

July 17, 2013

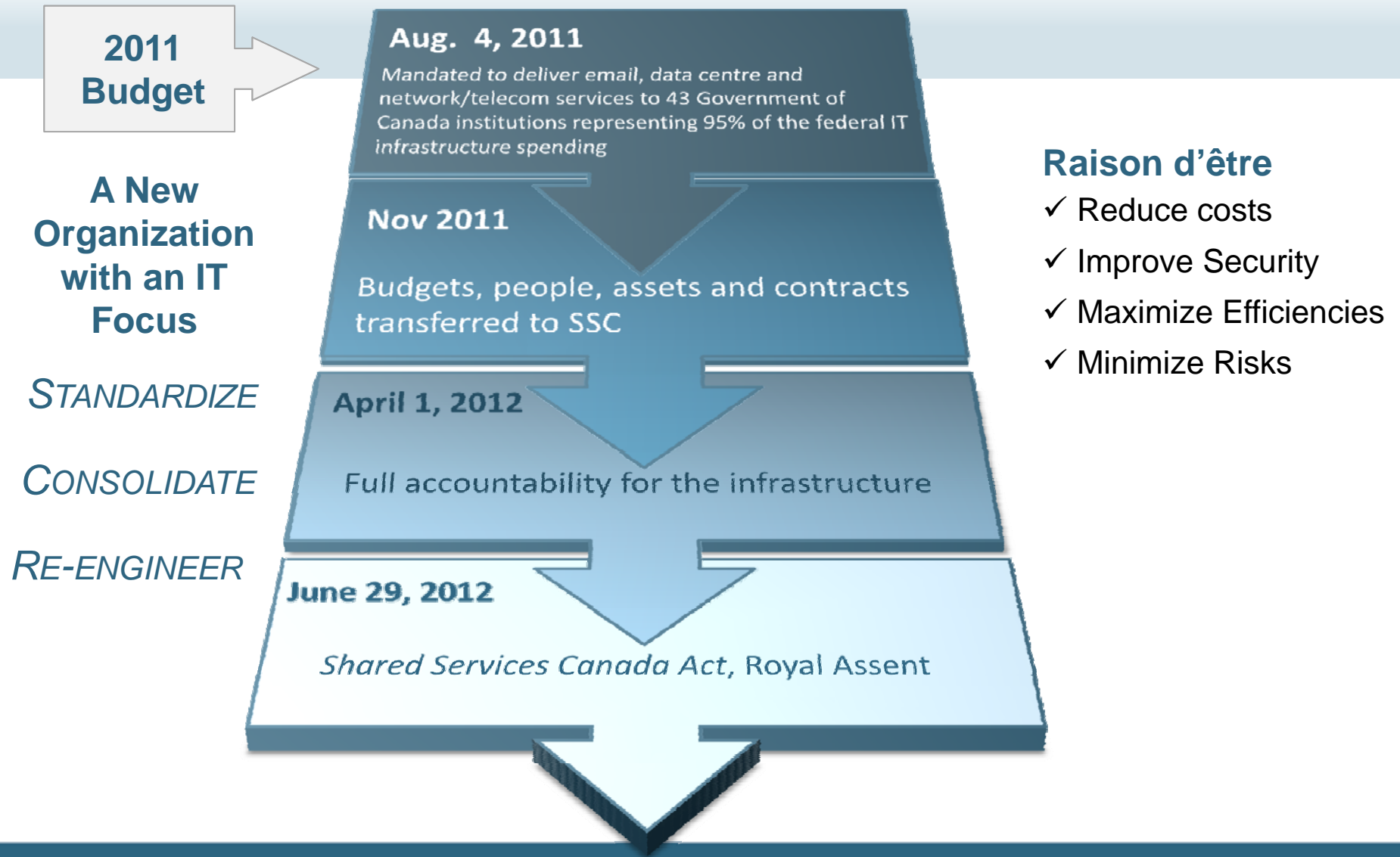


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SSC Background / Context



Strategic Vision and Principles

The Government of Canada will consolidate data centres and networks, transform telecommunications services, centralize their administration, and rationalize service delivery to achieve greater efficiencies, reduce costs, minimize risks, and improve security and service quality

IMPROVE SERVICE QUALITY

- Improve levels of service and security for all
- Modernize infrastructure and platforms
- Increase system availability, reliability, robustness and scalability
- Reduce dependence on physical location
- Implement ubiquitous personal mobility

MAXIMIZE EFFICIENCIES

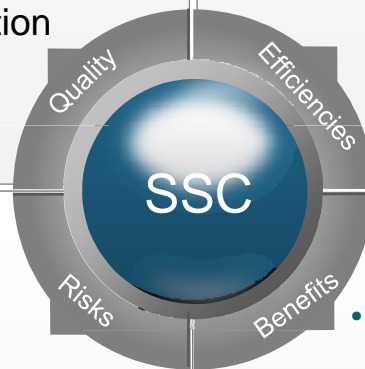
- Consolidate and converge to reduce duplication of infrastructure
- Standardize infrastructure and operations
 - Determine appropriate level of private sector engagement
 - Make effective use of shrinking IT labour force

MINIMIZE RISKS

- Fewer, better quality facilities
- Increase information security
- Power supply diversification
- Centralize planning and recapitalization
- Address aging IT infrastructure
- Examine industry investment and risk sharing

ADDITIONAL BENEFITS

- Significant environmental benefits
 - Reduce power demand
 - Reduce greenhouse gas emissions (cleaner power); reduce e-waste
- Enable Workplace 2.0
- Reduce travel costs (videoconferencing)



Transformation Objectives

SAVINGS



Transformation will realize material cost savings and avoid future costs.

SERVICE



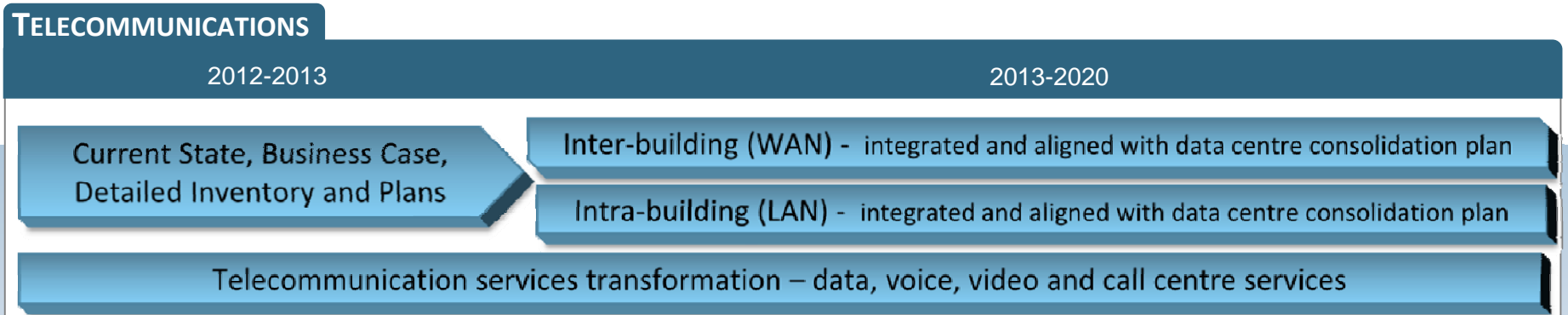
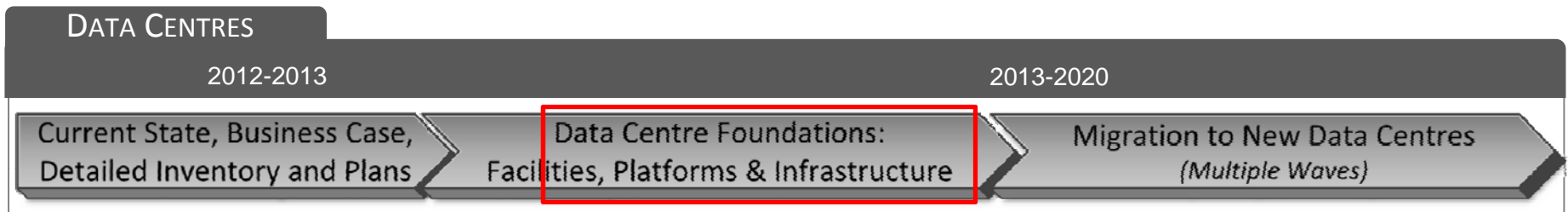
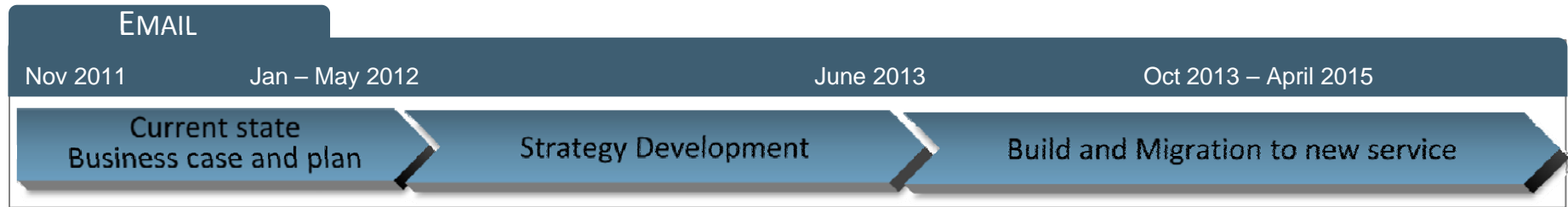
Transformation will match service levels to partner and GC priorities.

SECURITY



Transformation will provision a secure environment to meet program needs.

SSC's Transformation Initiatives



Engagement

Key Stakeholders

- Ministers
- Inter-departmental Advisory Committees (IT Business Transformation)
- CIO Council
- 43 Partner organizations
- Unions
- Industry

Inter-departmental Working Groups:

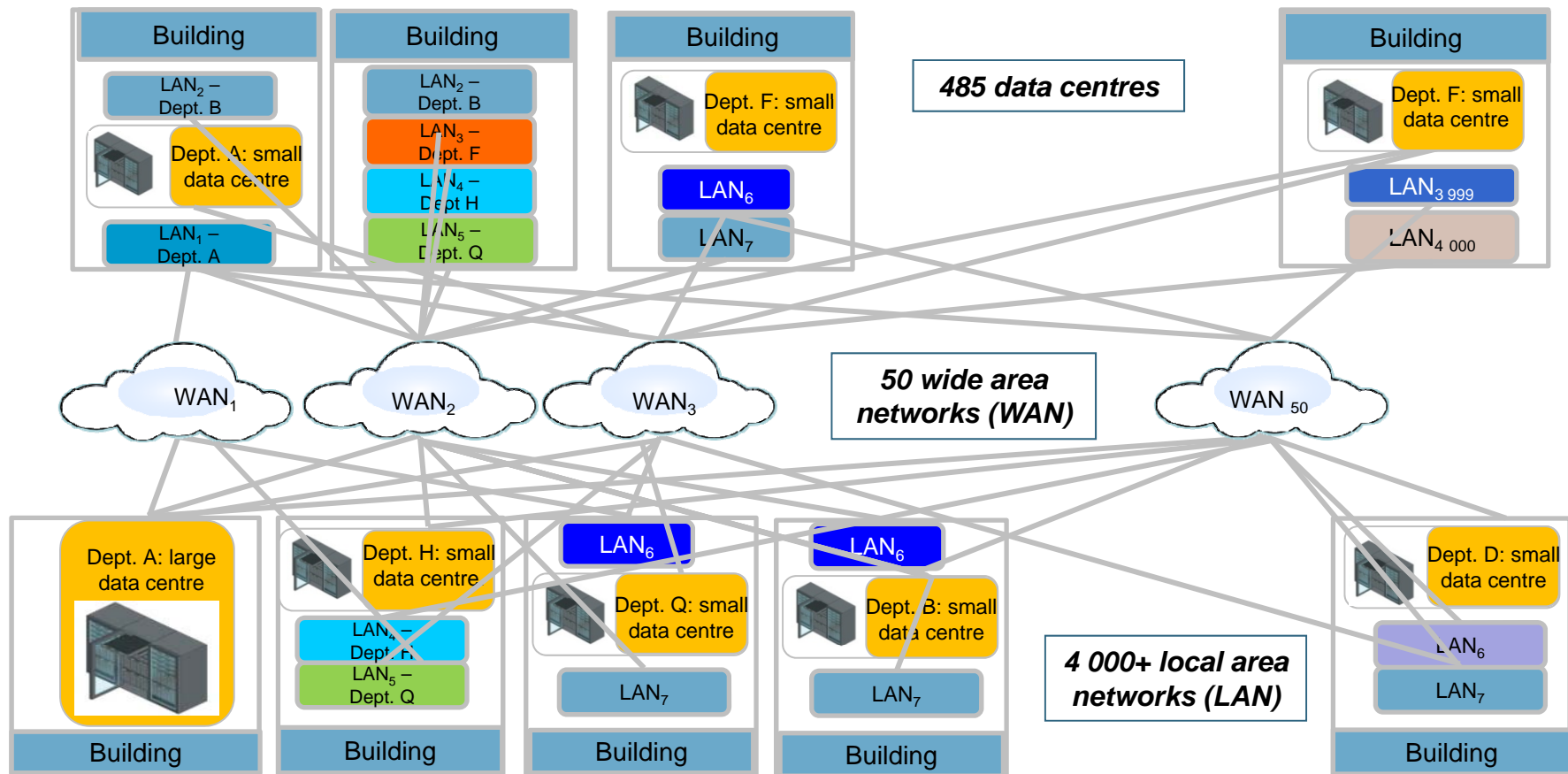
- Security
- Policy and Standards
- Functional
- Business Requirements
- Transition
- Operational & Service Mgmt
- Information Mgmt

Forums / Events

- Chief Information Officer Council (CIOC), CIO Forum
- DPI, GTEC
- Executive Summit
- Heads of IT meetings

Industry – Launch and closure of procurement process; engagement of industry based on sourcing strategies

Current State of Data Centres and Networks



Data Centre Vision: From – To Perspective

Key Components	Elements	FROM	TO (TBC)	
Facilities	Number of Data Centres	<ul style="list-style-type: none"> • 5 Tier 3 • 3 Tier 2 • 136 Tier 1 • 3060 Non-tier 	<ul style="list-style-type: none"> • 395 small (100 - 999 sq. ft.) • 68 medium (1000 - 4999 sq. ft.) • 22 large (> 5000 sq. ft.) • Additional 2,718 locations with servers 	< 10 Tier 3
	Power Density	<ul style="list-style-type: none"> • 30 W/sq. ft. 		> 100 W/sq. ft
	Footprint	<ul style="list-style-type: none"> • 591 000 sq. ft. IT Space • 123 000 sq. ft. M&E 		< 180,000 sq. ft.
IT Infrastructure	Servers	<ul style="list-style-type: none"> • 63,754 total servers: 23,424 physical, 40,220 virtual • Includes 1,860 non-standard systems • 73% virtualized (Wintel); 53% virtualized (Lintel); 59% virtualized (Unix) 		<ul style="list-style-type: none"> • < 40,000 • > 70% virtualized
	Computing Platforms	<ul style="list-style-type: none"> • 30% of servers older than 5 years • Processor architecture distribution is 95% x86 and 5% RISC • 71% Windows, 15% Linux, 6% Hypervisor, 5% Unix, 3% other legacy OS 		Standardized on few platforms: <ul style="list-style-type: none"> • Wintel high and std. availability (HA & SA) • Lintel (HA, SA) • z/OS (HA, SA) • High-performance computing
	Mainframe	<ul style="list-style-type: none"> • IBM z/OS + z/Linux = 16+5 DR; 146 LPAR; 73,000 MIPS • Unisys MCP = 5+1 DR; 10 LPAR and 10,000 MIPS 		
	Storage	<ul style="list-style-type: none"> • Volumes : 36 PB SAN/NAS, 130 PB off-line; 34 PB direct-attached storage in Midrange • Various enterprise, midrange, workgroup SANs and NASs (HDS 26%, IBM 23%, EMC 18%, HP 14%, NetApp 9%) 		<ul style="list-style-type: none"> • SAN/NAS, consolidated and standardized • 30% organic growth per year

Target End State

Target end state: Less than 10 data centres

- Established in pairs for redundancy
- Mostly private sector-owned
- Most outside of the National Capital Region

First pair: Development data centres

- GC-owned Macdonald-Cartier in Ottawa
- Bell Canada in Gatineau

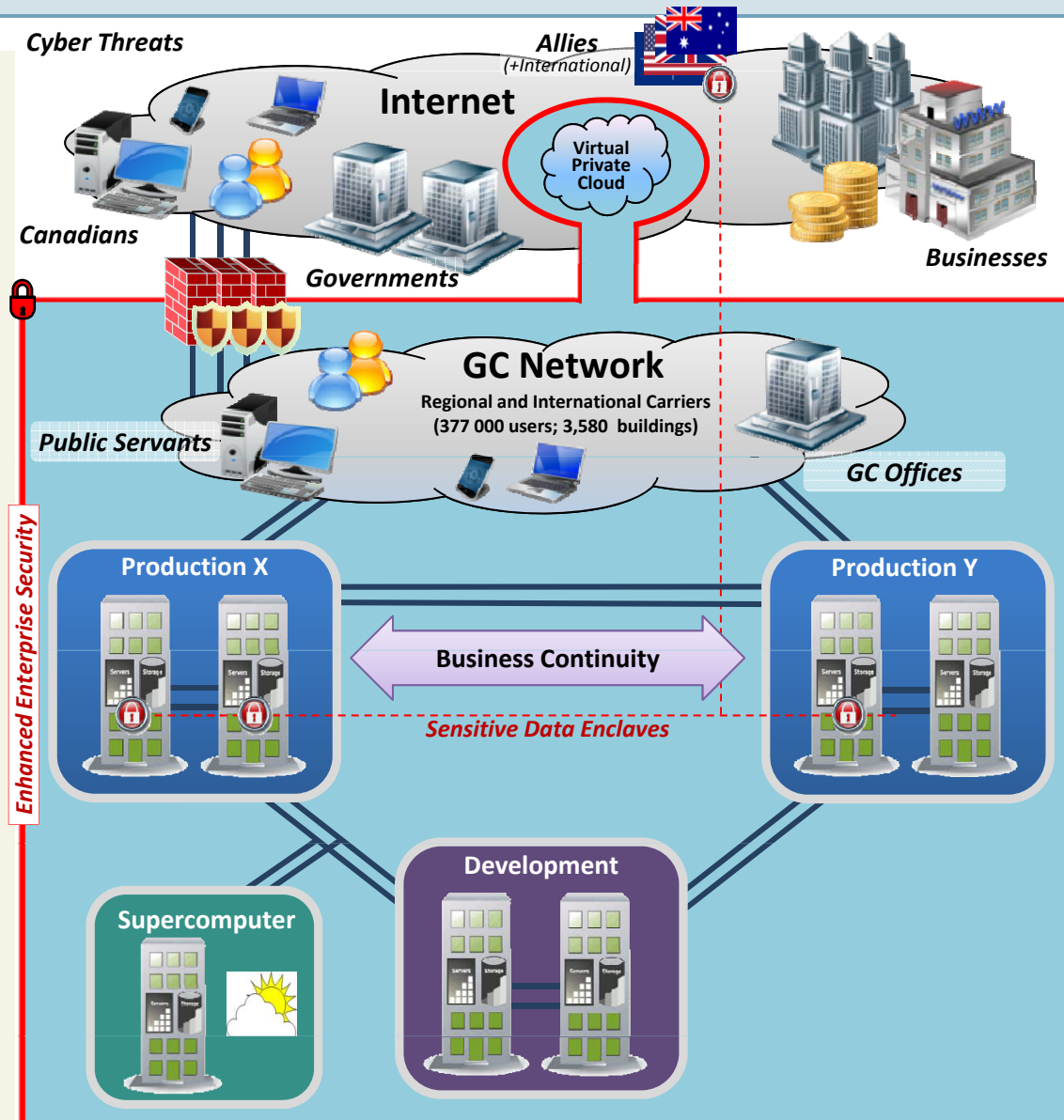
Second pair: First set of production data centres

- GC-owned facility on the Canadian Forces Base (CFB) Borden
- Site located within 100 km of Borden

Next pair(s): Next set of production data centres

- If required (to be confirmed)
- Located outside of NCR and ON

Specialized supercomputing facility



Target end state: Streamlined networks

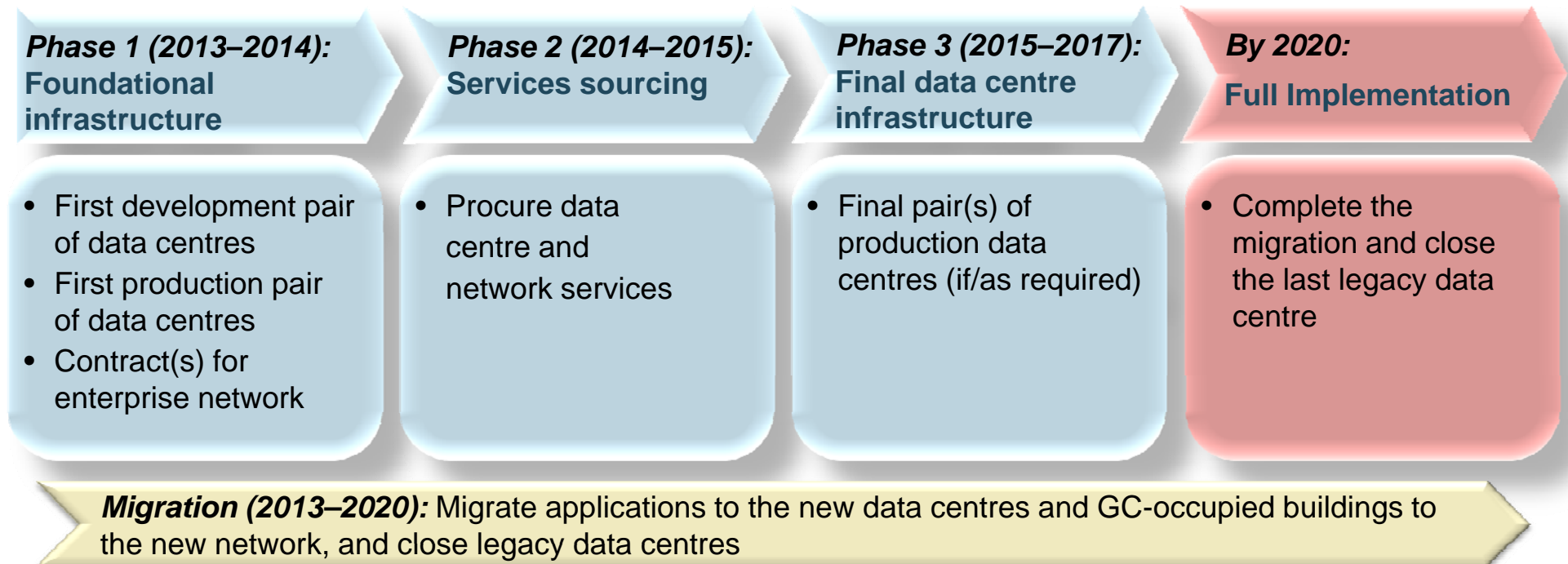
- Connecting 377 000 public servants to each other and to Canadians
- Linking 3 580 GC-occupied buildings

Key components include:

- Single **enterprise-wide network** with enhanced capacity and robustness
- Ultra high-speed, no fail **connectivity between data centres**
- Greater, more secure **Internet connectivity**
- Streamlined and **wireless** telecom infrastructure inside buildings
- **Voice services (VoIP)** (wired and wireless)
- More desktop **videoconferencing services**
- Contact Centre Infrastructure Services
- **Enhanced security** through consolidated security services and increased perimeter security

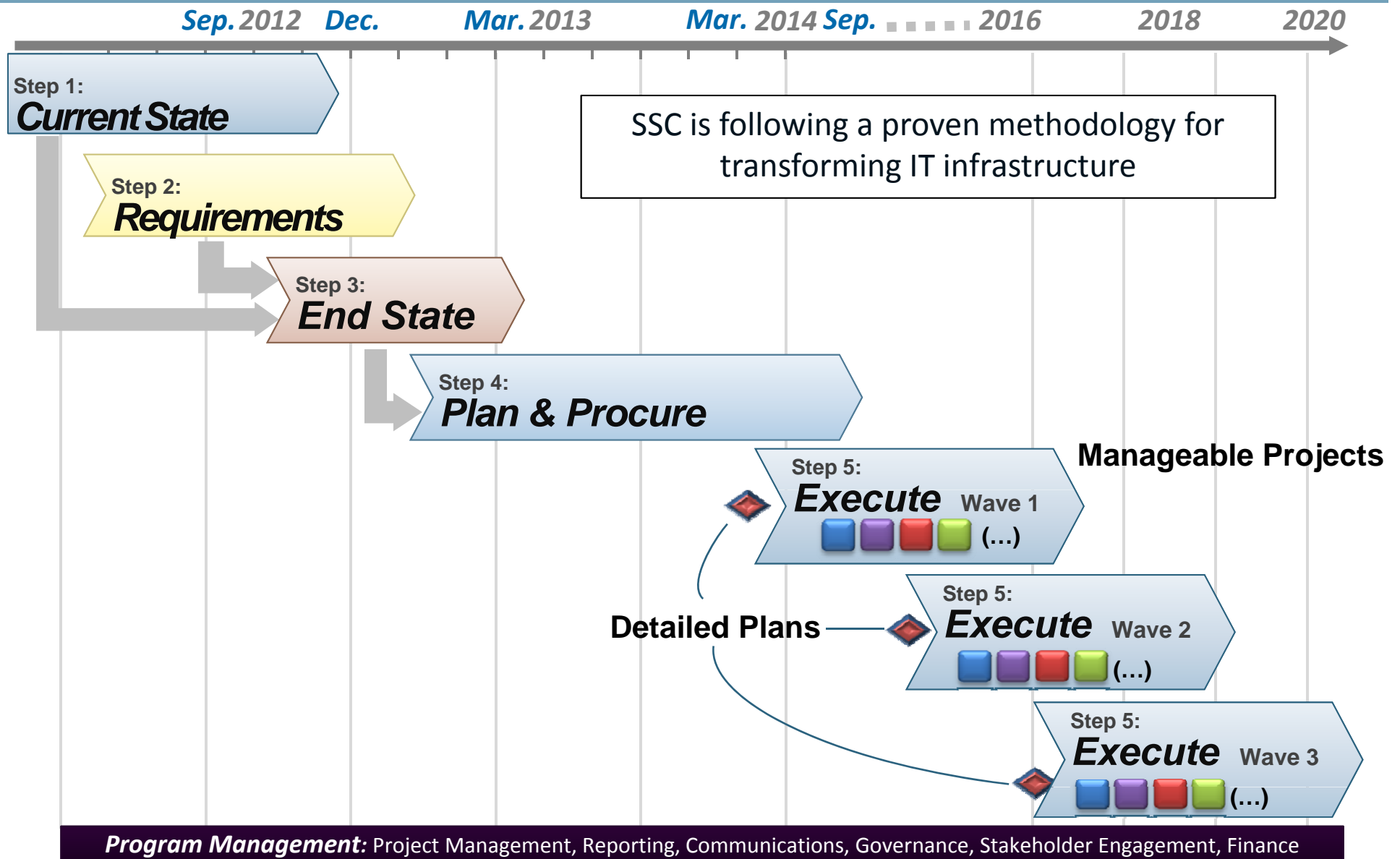
Phased Implementation

- SSC will implement the Data Centre and Telecommunications Transformation Plan in three phases.

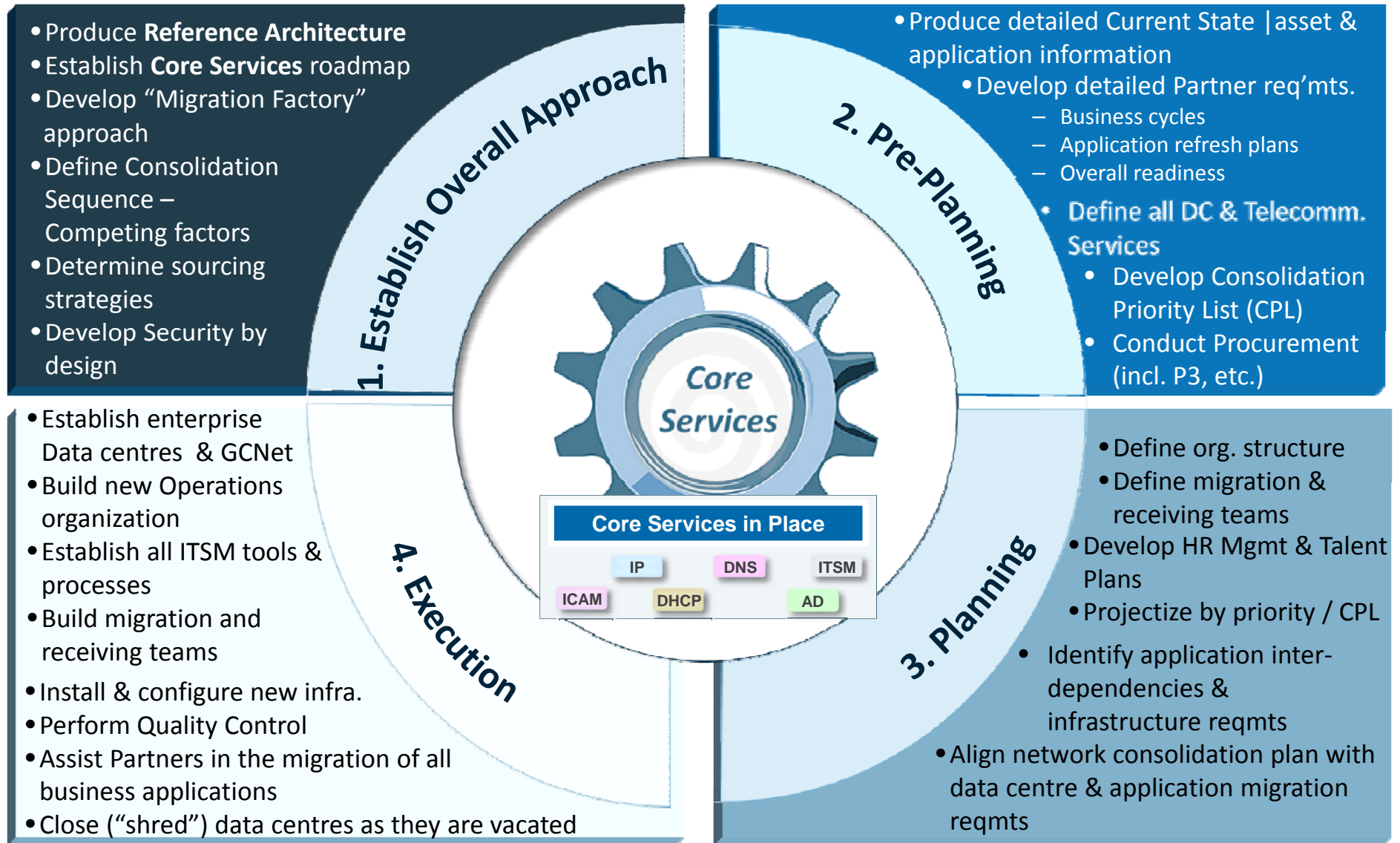


- Full consolidation of data centres and networks will take seven years to complete.
- Savings, security enhancements and service improvements will be realized from the outset.

Transformation Timeline



Transformation Phased Approach



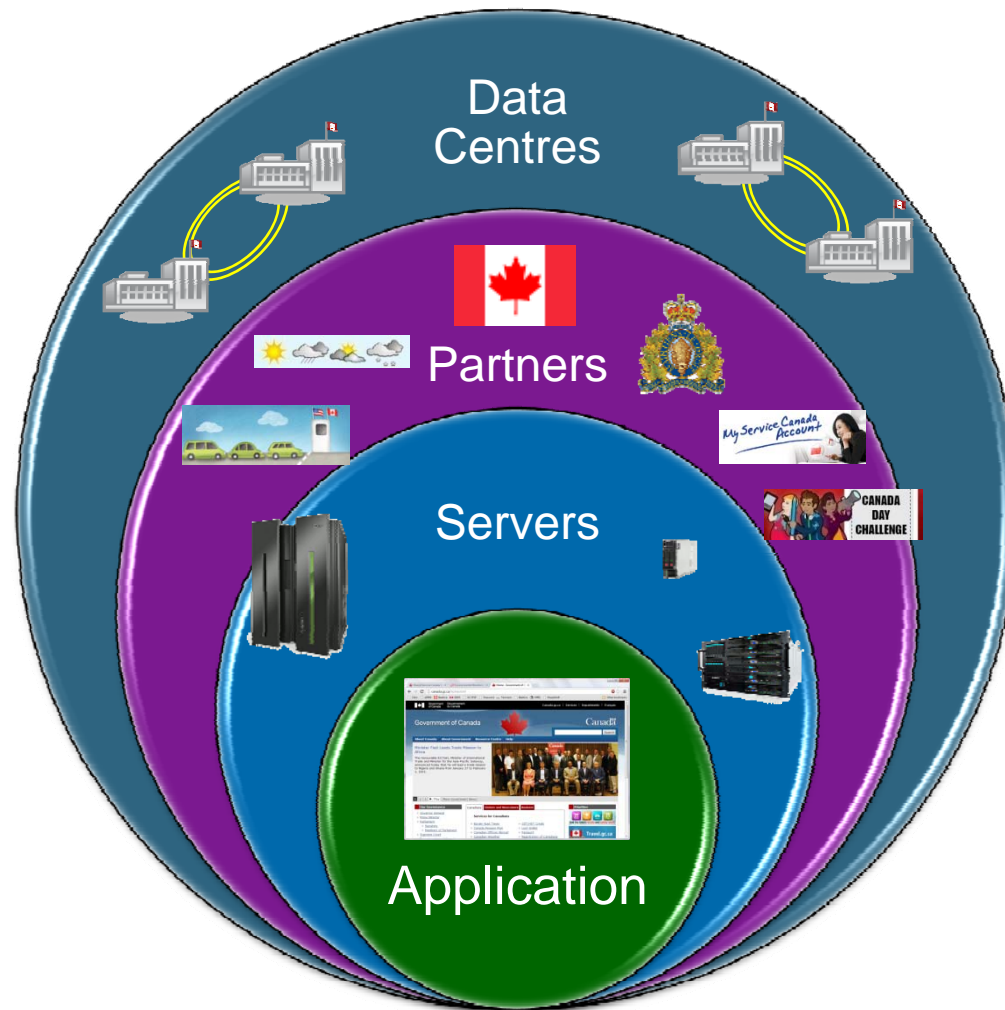
UNIT OF TRANSFORMATION WORK:

DCC:
Server

TTP:
Building

Application-Centric Approach To Planning/Execution

- Overall planning and execution framework is based on an application-centric approach
- Project for each server or suite of servers (1,000's)
- 14,020 applications on 63,644 servers in 485 data centres and 2,718 other locations



Overall Transformation Approach

Architecture

Facilities

Security

Storage

Platforms

Applications (App.)

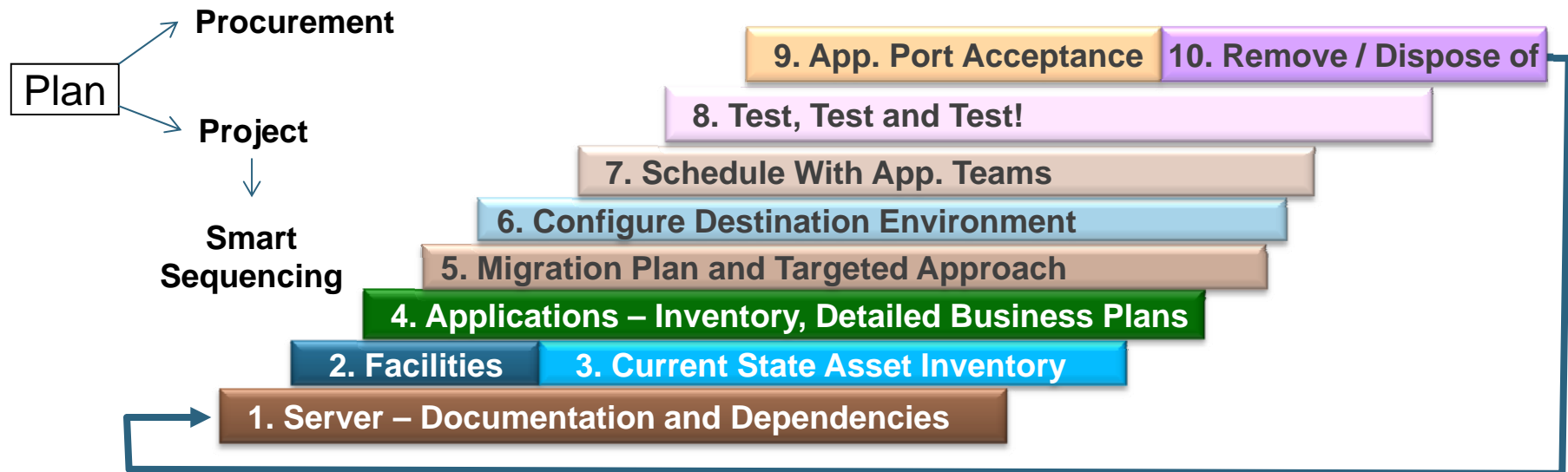
Foundational Elements

Data Centres

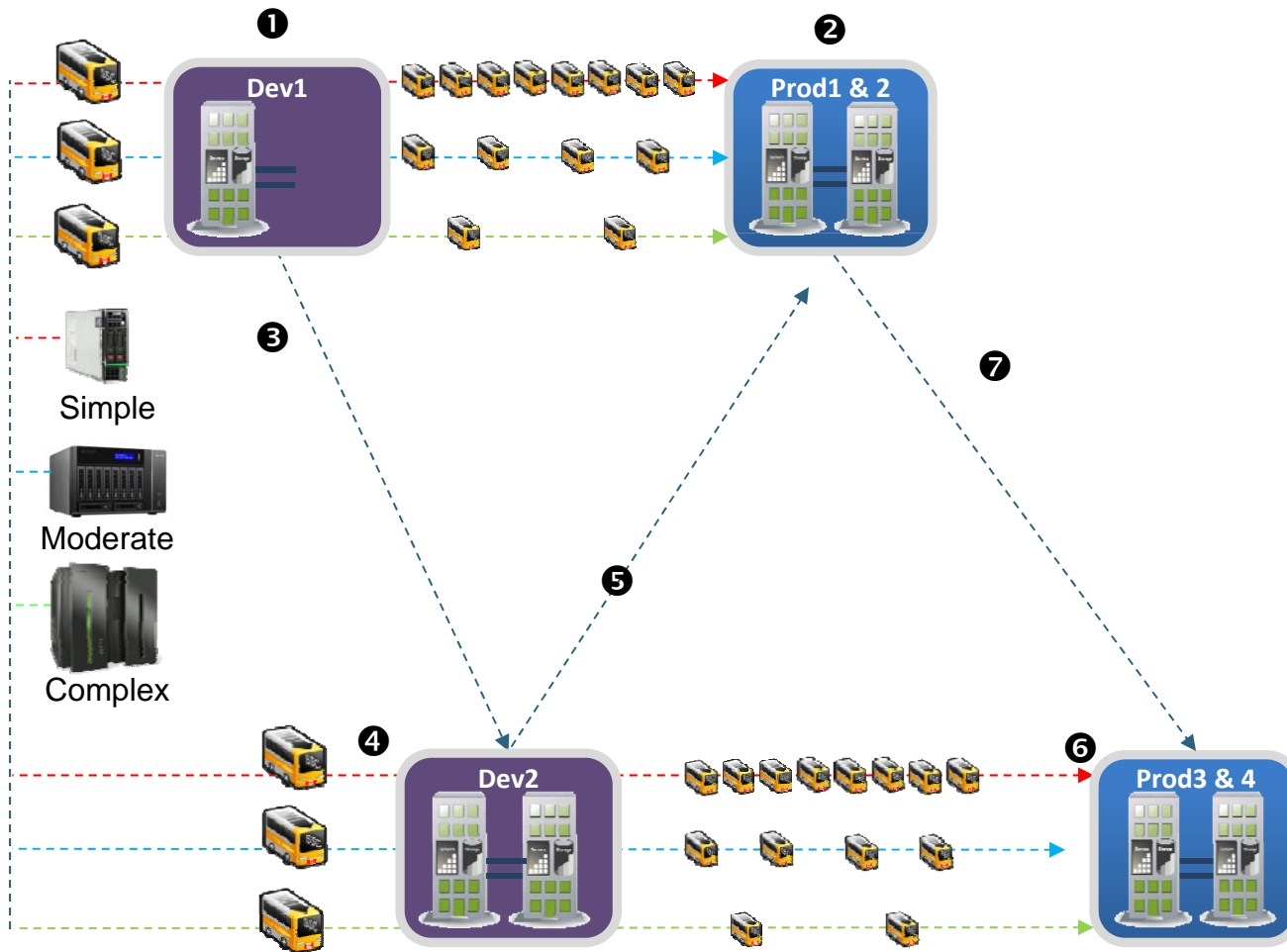
Networks (WAN, LAN)

Supply Chain for Servers and Storage

Deploy – Servers



Overall Transformation Approach (cont'd)



- ❶ Dev1– use existing Bell contract
- ❷ Update Prod1 (P3); new space contract for Prod2
- ❸ Wave 1 Migration; multiple bus routes
- ❹ Upgrade Dev2
- ❺ Wave 2 – Into full Prod1 and Prod2
- ❻ Prod3 and Prod4
- ❼ Wave 3 Migration to all Prod DCs, particularly Prod3, Prod4

Bus routes will exist for different types of servers; multiple lines of transformation (as in manufacturing) will provide partners with multiple options to migrate their applications; after two - three steps, applications MUST be moved, even if moved to temporary Quarantine Zones (QZs)

Business Requirements

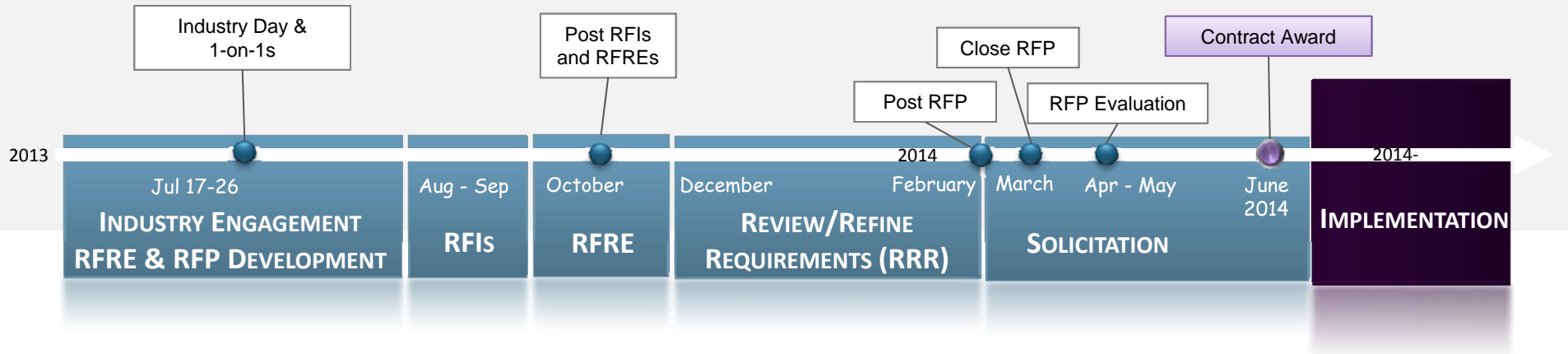
- **Support a wide variety of federal government programs** and applications ranging from corporate file stores and routine data exchanges, to real-time government-wide mission-critical military, policy, health and public safety information
- **Enterprise** infrastructure and service management to eliminate silos and **facilitate interoperability** across departments and agencies
- **Reduce duplication** and inefficiencies
- **Ensure high availability** for mission critical applications
- **Standardize service levels** to ensure a consistent delivery and availability of Data Centre services across all SSC partners and agencies
- **Minimize cost** to manage service
- **Security:** Supply must meet the **Trusted Supply Chain Requirements** (identified in the “Supply Chain Integrity” presentation to follow)

Functional Requirements

- Supplier diversity (primary/alternate and/or multiple primary)
- Built-in, on-going competition to ensure best value, continuous improvement and innovation
- Open standards to allow for workload mobility / portability across suppliers
- Certified compliance and compatibility with SSC reference architectures
- Maximum pre-configuration and integration pre-delivery
- No “Shopping list” / “retail” procurement vehicles
- Innovative financing and commercial terms
- Just-In-Time capacity
- Self-service / self-provisioning
- Frequent market checks to take advantage of technology, economic or market shifts
- Provisions for annual price competition to ensure best value to Canada
- Secure multi-tenant environment (GC Domains & Zones)

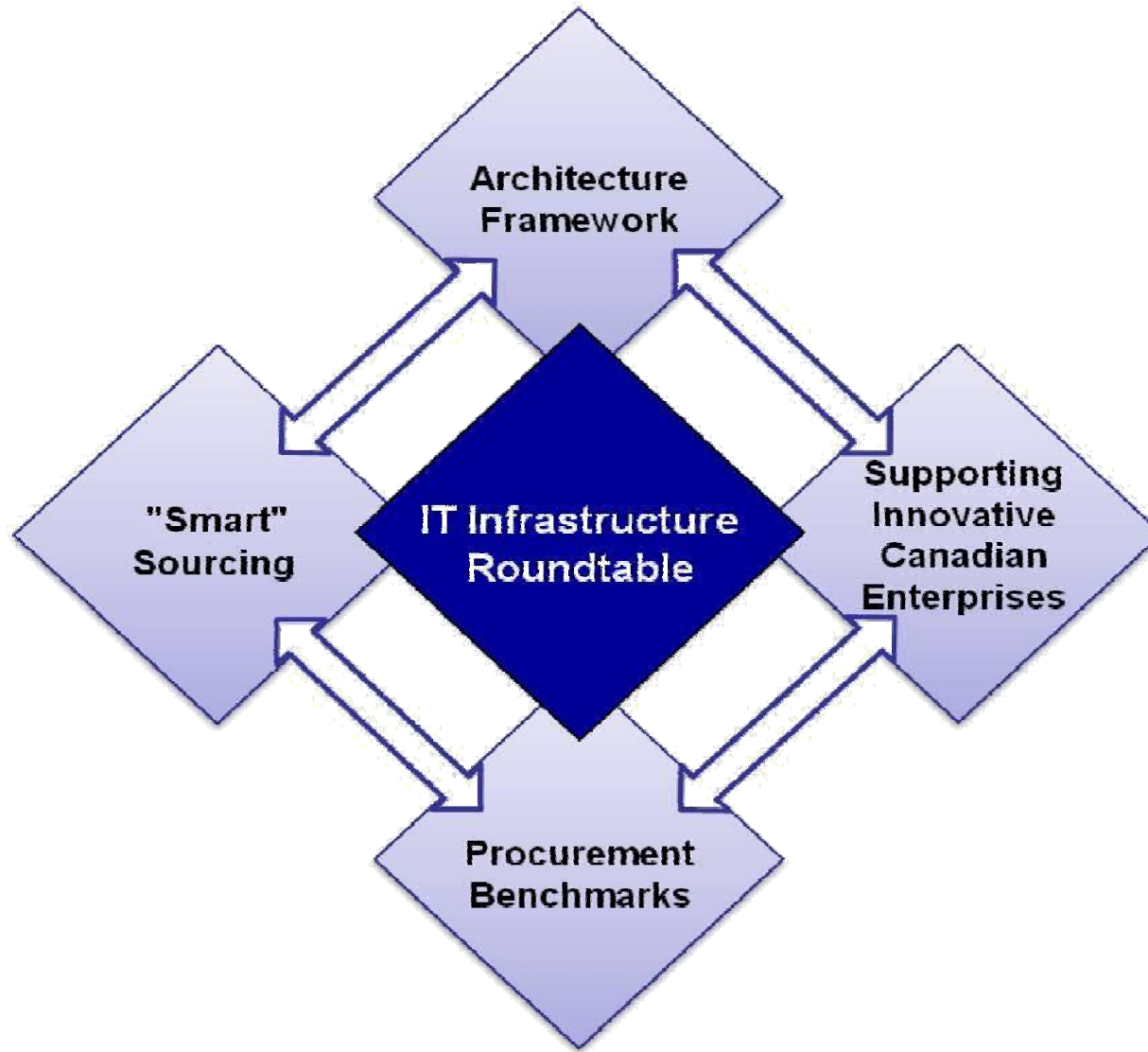


Procurement Timeline to Contract Award



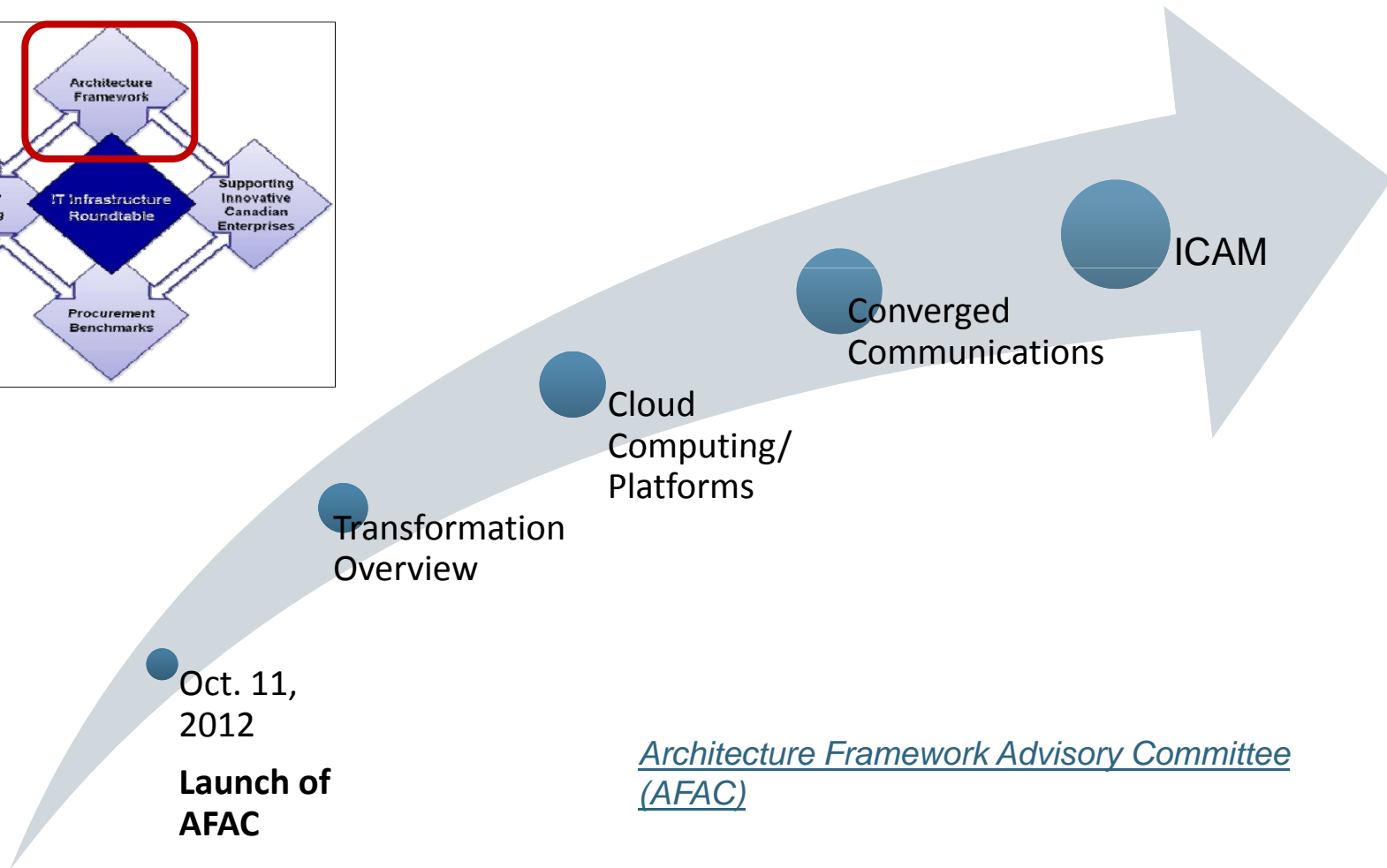
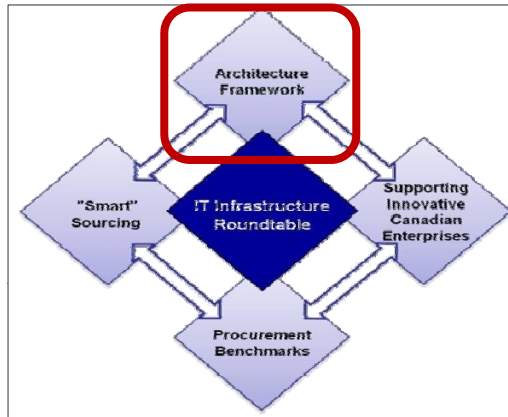
- The Collaborative Procurement process (identified above) will be explained further in the following “Collaborative Procurement Solutions Approach” presentation
- Supply Chain Integrity (SCI) verification will be conducted during the RRR to ensure all IT Products meet Canada’s security and supply chain standards; more detail will be provided in the following “Supply Chain Integrity” presentation

Stakeholder Engagement: IT Infrastructure Roundtable



Stakeholder Engagement - AFAC

Architecture Framework Advisory Committee (AFAC) was launched in October 2012 and includes a core group of members from ICT Industry and SSC



SSC Transformation Overview: Recap & Questions

Questions?
(for Suppliers only)





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Data Centre Platforms & Infrastructure

Peter Littlefield

Director General, Data Centre Consolidation

Shared Services Canada

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Goal and Objectives

- Goal of Data Centre Services:
 - Standardise and consolidate the GC's IT infrastructure and platforms while meeting SSC Partners' common service requirements
- Today's Objectives:
 - To outline current thinking related to what data centre services will be provided by SSC
 - To describe SSC's proposed standard platforms and infrastructure and begin pre-procurement engagement with industry on service delivery options

Platform & Infrastructure Objectives

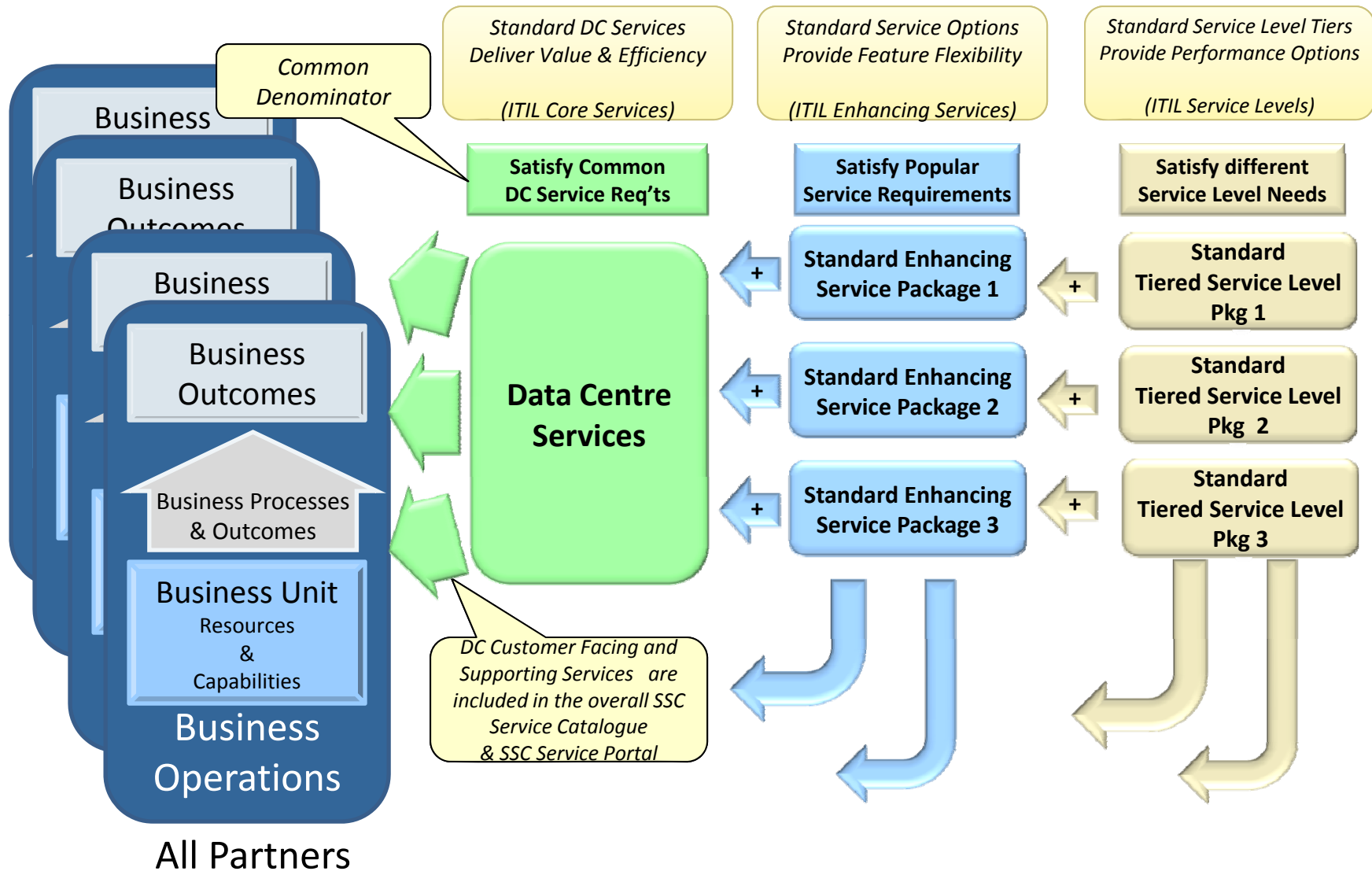
- Standardization
 - Rationalize and consolidate like functions to standard specs.
 - Lower overall cost to GC of engineering and support
 - Find IT “commodities” and apply smart-sourcing principles to them
 - Cost efficiencies
 - Consistent service behaviours
- Increase:
 - Automation
 - Service elasticity
 - Service delivery consistency
 - Security

Approach

- Leverage Current State Assessment of Partners, Industry Trends and GC IT Services Profile
- Define target Data Centre Services to initiate the collaborative process of identifying and aligning to common service requirements
- Define detailed service offering & request specifications to drive procurement and development of Data Centre Services
- Activate the Catalogue when Data Centre Services are available for deployment

Improve Service Value & Delivery

Standard Common Services + Standard Service Options + Standard Service Level Tiers, minimizes technology variance and IT effort, while providing flexibility to customers



Proposed Data Centre Services

DC Partner / End-User Facing Services

- Application Hosting
- Database Hosting
- Data Warehouse Hosting
- High-Performance Computing
- File Service (GCDrive)
- Distributed Print Service
- Bulk Print Service
- Standard Development Environment

DC Enabler Services

- Compute & Storage Provisioning
- Virtual Desktop Infrastructure
- Backup / Recovery Service
- Data Archival Service
- Facilities Management
- Remote Admin Service

Proposed Tiered Service Levels

Service Parameter	Development	Standard	Enhanced	Mission Critical
Hours of Operation	7x24x365	7x24x365	7x24x365	7x24x365
Hours of Support	5x12 Dev Support Services with Continuous Monitoring	5x12 Standard Support Services with Continuous Monitoring	7x24 Enhanced Support Services with Continuous Monitoring	7x24 Critical Support Services with Continuous Monitoring
Availability	99.5% < 44 hrs. Annual Outage	99.8% Available < 18 hrs. Annual Outage	99.9% Available < 9 hrs. Annual Outage	99.9% Available < 9 hrs. Annual Outage
Service Continuity	Intra-Data Centre High Avail. (lifecycle environments to match Production)	Intra-Data Centre High Avail.	Inter-Data Centre High Avail.	Inter-Data Centre High Avail. Inter-Region Disaster Recovery

Data Centre Element Framework

4. Security

- Security Operations Centre (SOC) – a part of Cyber Strategy
- Integrated intrusion protection, patch mgmt. and incident resp.

5. Management & Ops.

- Data Centre Operations (Level 1 support; part of NOC)
- IT Service Management
- Service Strategy & Transition
- Management Layer
- Corporate Services

6. Business & Applications

- Partners' business needs

3. Computing Platforms

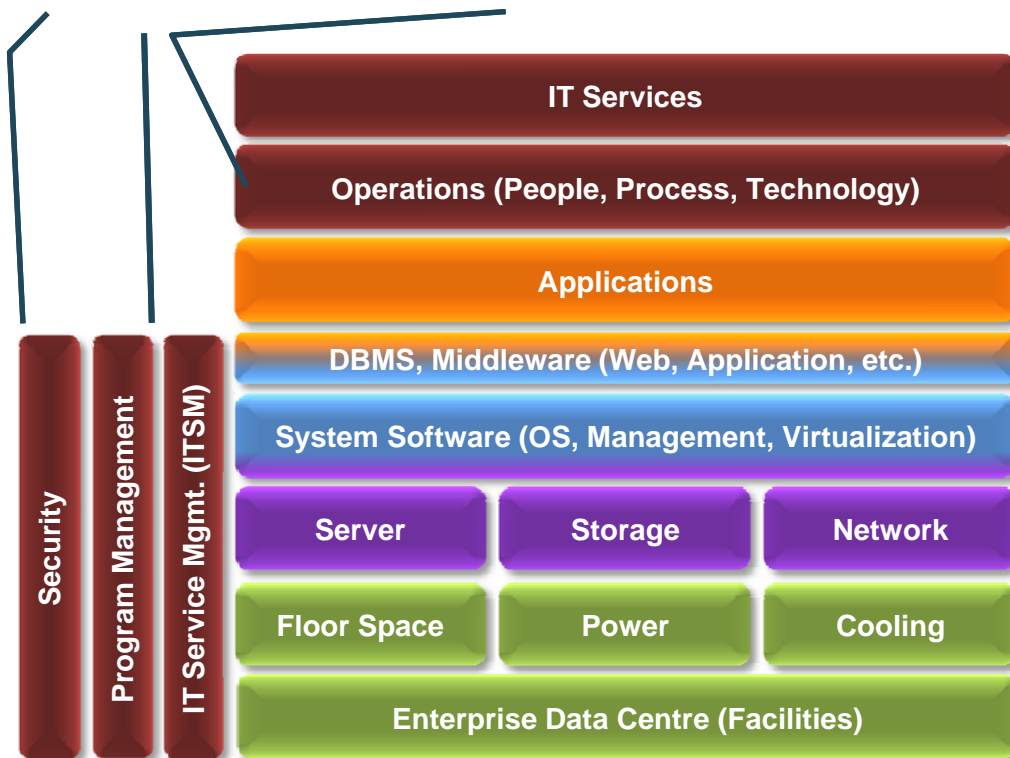
- Standardized Mainframe, Wintel, Lintel platforms to meet 90% of needs
- Standardized database software and select middleware
- Factory-engineered to SSC's specs.

2. Infrastructure

- Storage and network abstracted from applications and users
- Virtualized servers and storage for most efficient utilization
- Converged or component infrastructure
- Tight integration with platforms

1. Facilities

- Most visible element of DCC
- Buildings plus specialised mechanical and electrical systems



Proposed End State - Platforms

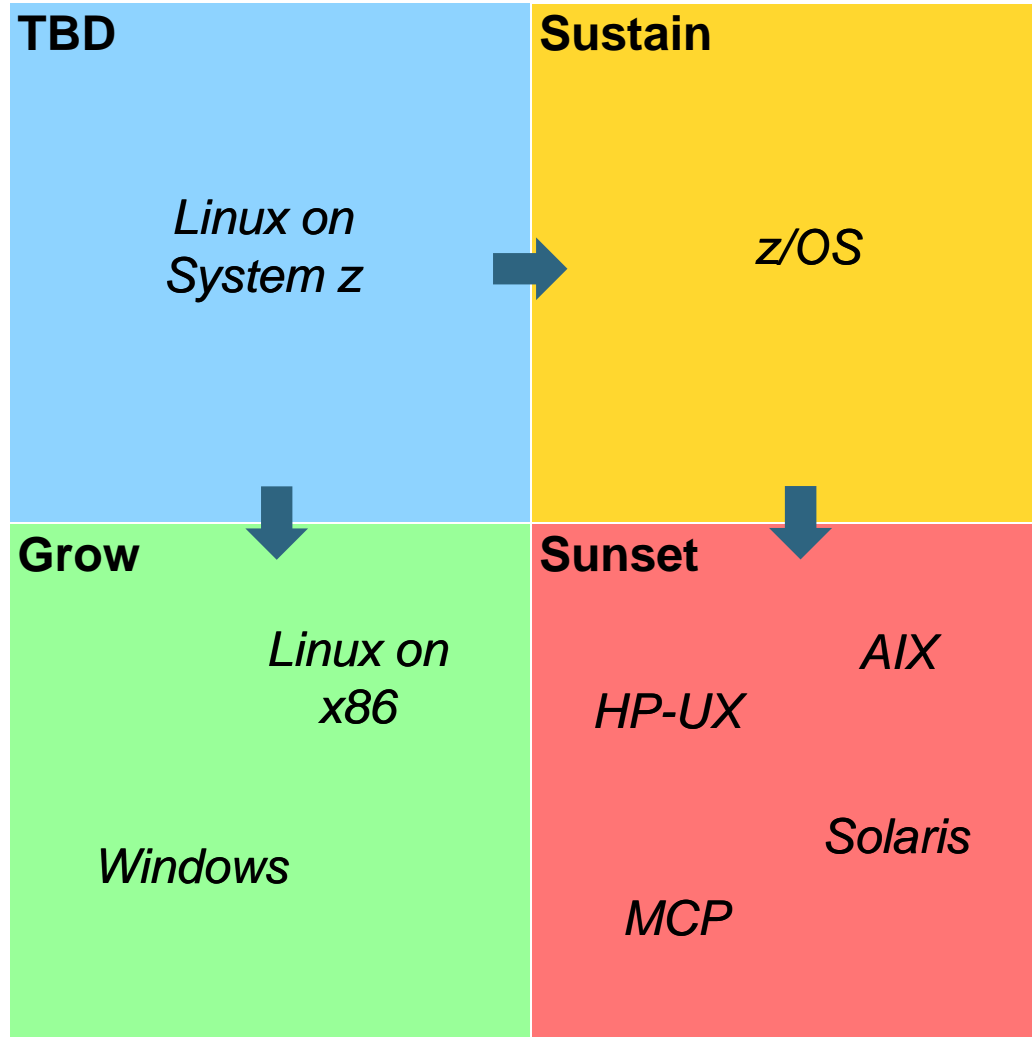
- Meet >90% of platform needs with standardized Linux, Windows (*growth* platforms), and z/OS (*sustainment* platform)
- Standardized application, database, and middleware platforms
- Standardized and published release and support schedule and roadmap (n-1, n, n+1)
- Standardized Service Catalogue and Service Levels
- Highly automated deployment and management
- Reduced administrative costs



- On demand, self service, shared infrastructure
- Infrastructure (storage, servers and network) abstracted from applications and users in resource pools
- Measured service for most efficient utilization
- Adaptable, secure, standards based

Platform Technologies – Directions

Technologies whose disposition will be determined over the coming months



Technologies that will be maintained at current business volumes, with organic current business growth; no new business or workloads will be directed here

Technologies where investments will be made, transformation will focus, and new business and workloads will be directed

Technologies which will be phased out over the course of the transformation; workloads will be migrated to “Grow” platforms

Platform Technologies – Example Use Cases

GROW

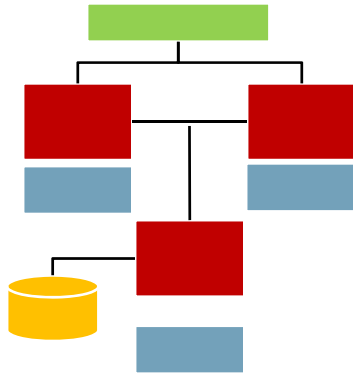
Example Use Cases	Windows	Linux	z/OS
Application Hosting	✓	✓	✓
Enterprise Resource Planning		✓	
Document Management	✓	✓	
Collaboration	✓	✓	
Virtual Desktop / Thin Client	✓		
File Services		✓	
Database / Data Warehouse		✓	✓

Proposed Platforms

		Interim Platform / Initial Release	Proposed at End State
Operating System	Windows	Windows Server 2012	Windows Server
	Linux	SUSE 11.2 or REHL 6.x SUSE Linux for zSeries	Commercially Supported; determined via a Competitive process
		Non Commercially Supported (?)	Non-commercially Supported (?)
Hyper-visor	x86 Commercially supported	VMWare vSphere 5.1	Commercially Supported; determined via a Competitive process
		Windows Server 2012 Hyper-V	
	Non Commercial Linux	NA	Non-commercially Supported (?)
DBMS	x86	Oracle 11G R2 / Linux	Commercially Supported; determined via Competitive process
		MS SQL Server 2012 /Windows Server 2012	
		MySQL (?) / Linux	Non-commercially Supported (?)
	System z	IDMS, DB2	Commercially Supported determined via Competitive process
Web Application Platforms	.Net	IIS v8 /.Net 2012	IIS v8 /.Net 2012 (?)
	Java	Weblogic 12C / Websphere 8.0 & 8.5 / Linux	Commercially Supported; determined via a Competitive process
		LAMP (?)	LAMP (?)

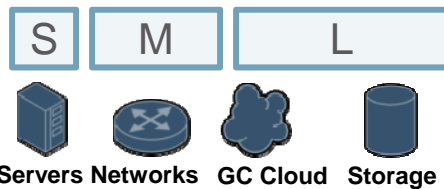
Support of standard platforms will be restricted to three versions: n-1, n, n+1

Service Catalog: Service Offering Creation



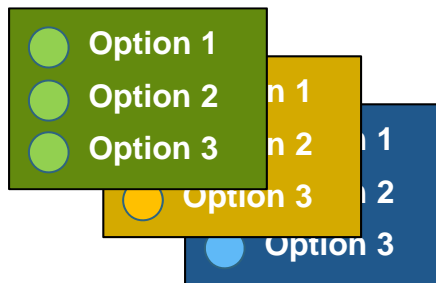
Create Service Template:

The definition of software components and the communication paths between them: i.e. Web, Middleware, Database



Specify Deployment Models:

One or many different deployment sizes for deploying the Service Template, i.e. Small, Medium, Large



Define Service Options:

A set of configurable options associated with a Service for users to select at request time, i.e. , Storage, Retention, Location, Service Level



Create Service Offering:

Requestable services, with costing, entitlement, and change approval configured are placed in the Online Catalog

Data Centre Architecture Vision

To provide a set of defined target services coupled with advanced features of the underlying infrastructure to:

- Provide a dynamic, “*Just in time*” computing environment that meets the varied application and data processing needs of SSC Partners on an on-going basis
- Establish a software continuum built up from elementary services through to full programmability and promoting a common application delivery model
- Adapt and evolve over time in a manner that aligns with an ever-changing technological and market landscapes without incurring any penalties due to decisions made
- Leverage virtualization to drive consistency and standardization across platforms, thereby reducing overall complexity and related costs
- Support service model deployment innovation and cost savings through private sector engagement

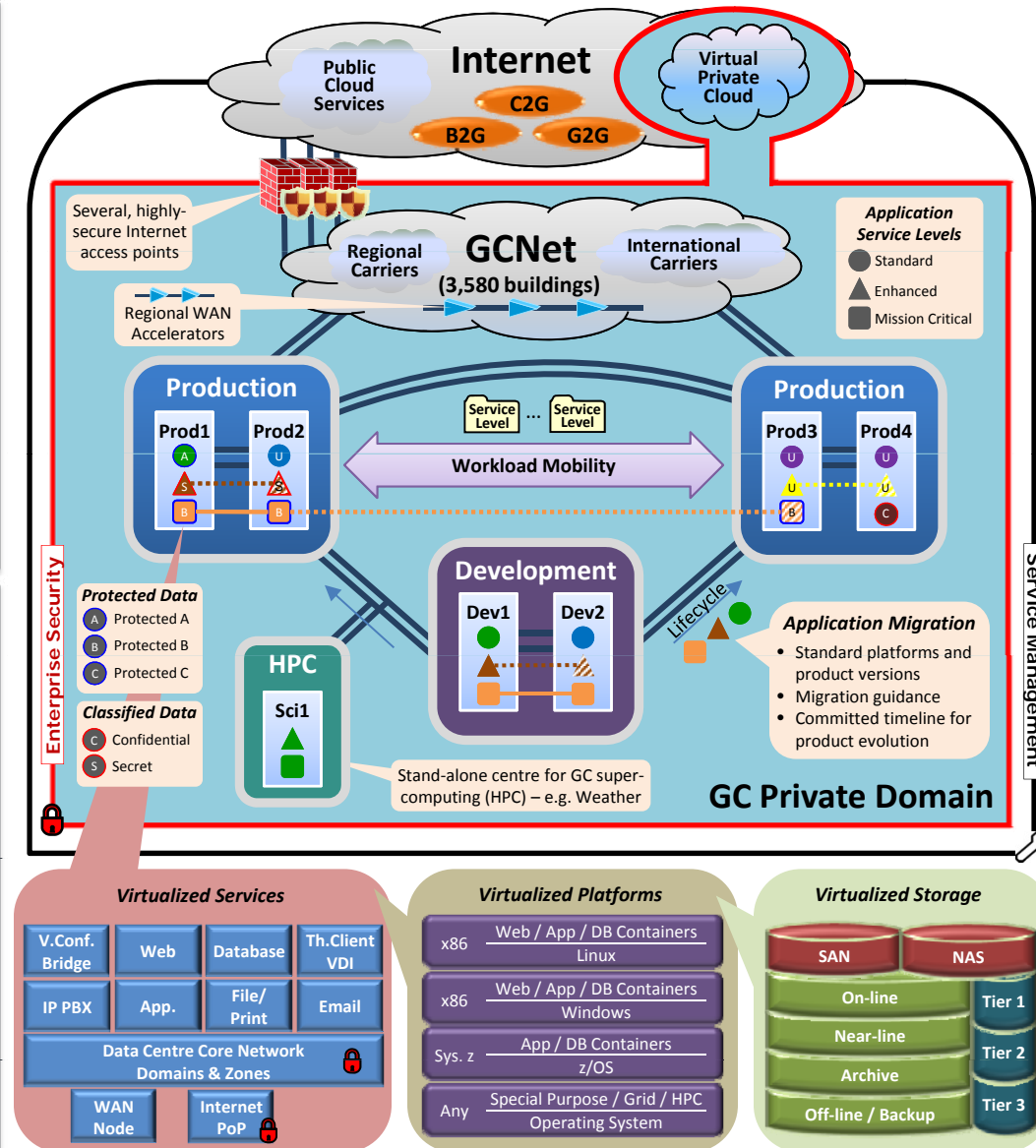
Target End State

Enterprise Security

- All departments share one Operational Zone
- Domains and Zones where required
- Classified information below Top Secret
- Balance security and consolidation
- Consolidated, controlled, secure perimeters
- Certified and Accredited infrastructure

Service Management

- ITIL ITSM Framework
- Standardized Service Levels/Availability Levels
- Inclusive of Scientific and special purpose computing
- Standardized Application and Infrastructure Lifecycle Management
- Smart Evergreening
- Full redundancy – within data centres, between pairs, across sites



Consolidation Principles

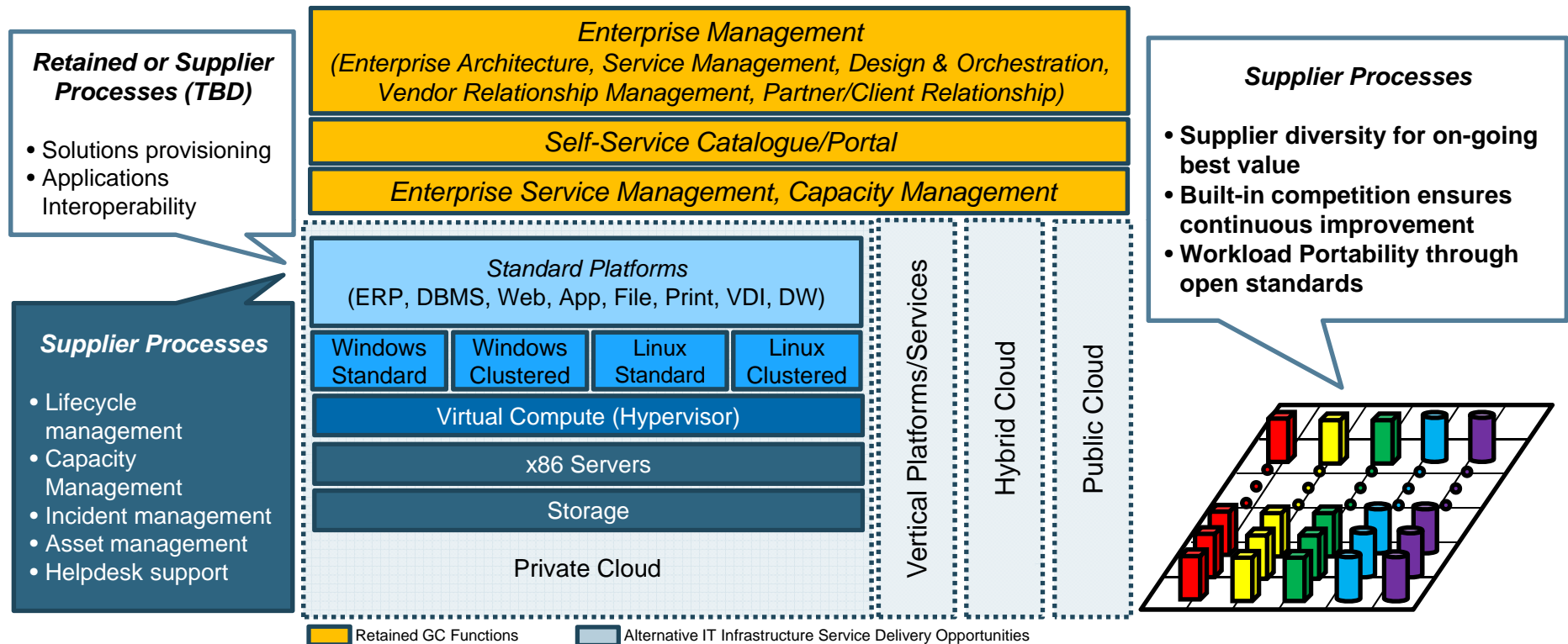
1. As few data centres as possible
2. Locations determined objectively for the LT
3. Several levels of resiliency and availability (establish in pairs)
4. Scalable and flexible infrastructure
5. Infrastructure transformed; not “fork-lifted” from old to new
6. Separate application development environment
7. Standard platforms which meet common requirements (no re-architecting of applications)
8. Build in security from the beginning

Business Intent

- Business to Government
- Government to Government
- Citizens to Government

Platform Procurement Outlook

Pre-configured, pre-integrated and lifecycle-managed infrastructure and platforms (IaaS and PaaS)



Contract Options:

- Horizontal vs. Vertical (e.g. DB appliance)
- Standard vs. Cluster (High Availability)
- Wintel vs. Lintel
- Development vs. Production
- Lease vs. Buy
- Goods (Assets) vs. Services
- Separate Storage from Compute
- Separate Service Management

Engaging Industry for Feedback

Objective:

- Allow for an exchange of information through discussion (during one-on-one sessions) with platform and infrastructure experts that will ultimately inform Data Centre Consolidation strategies and procurement planning
- Provide suppliers with the opportunity to share their knowledge with the GC on the following discussion topics (detailed slides to follow):
 1. Service Delivery Models (including service levels)
 2. Value-added services (bundling, pre-configuration, etc.)
 3. Contract(s) Period and Terms
 4. Pricing Models

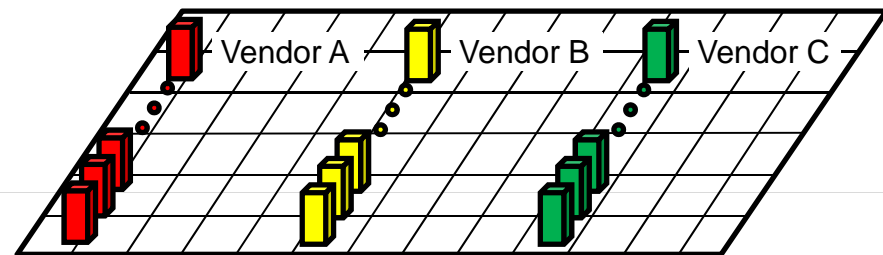
Topic: Service Delivery Models

Discussi
Topi

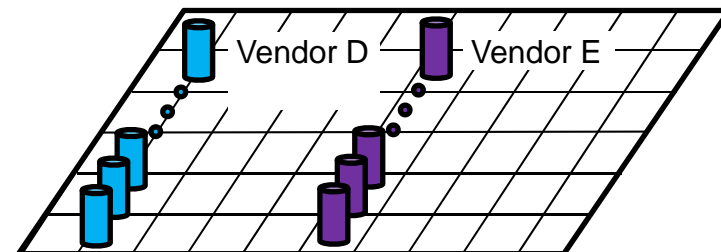
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Preferences:

- Supplier diversity
 - *Best way to achieve?*
- Suppliers managing the whole stack
 - *Best division of work?*
- Solution life-cycle management (patches, upgrading, release schedules, etc.)
 - *Reasonable?*
- Suppliers delivering directly to end-state data centres
- Capacity on demand and capacity monitoring



Data Centre #1



Data Centre #2

Topic: Value-Added Services

Discussi
Topi

2

Objective:

To leverage the capability of the vendor to deliver on repeatable and consistent pre-integration (commodity engineering):

- Solution life-cycle management (patches, upgrading, release schedules, etc.)
- Capacity monitoring and capacity on demand
- Engineering and Integration done at the factory, to meet standard configurations
- Management of O/S and Application images and packages where it makes sense (optionally)
- Service Portal
- Solution engineering
- GFE (e.g. software assets)

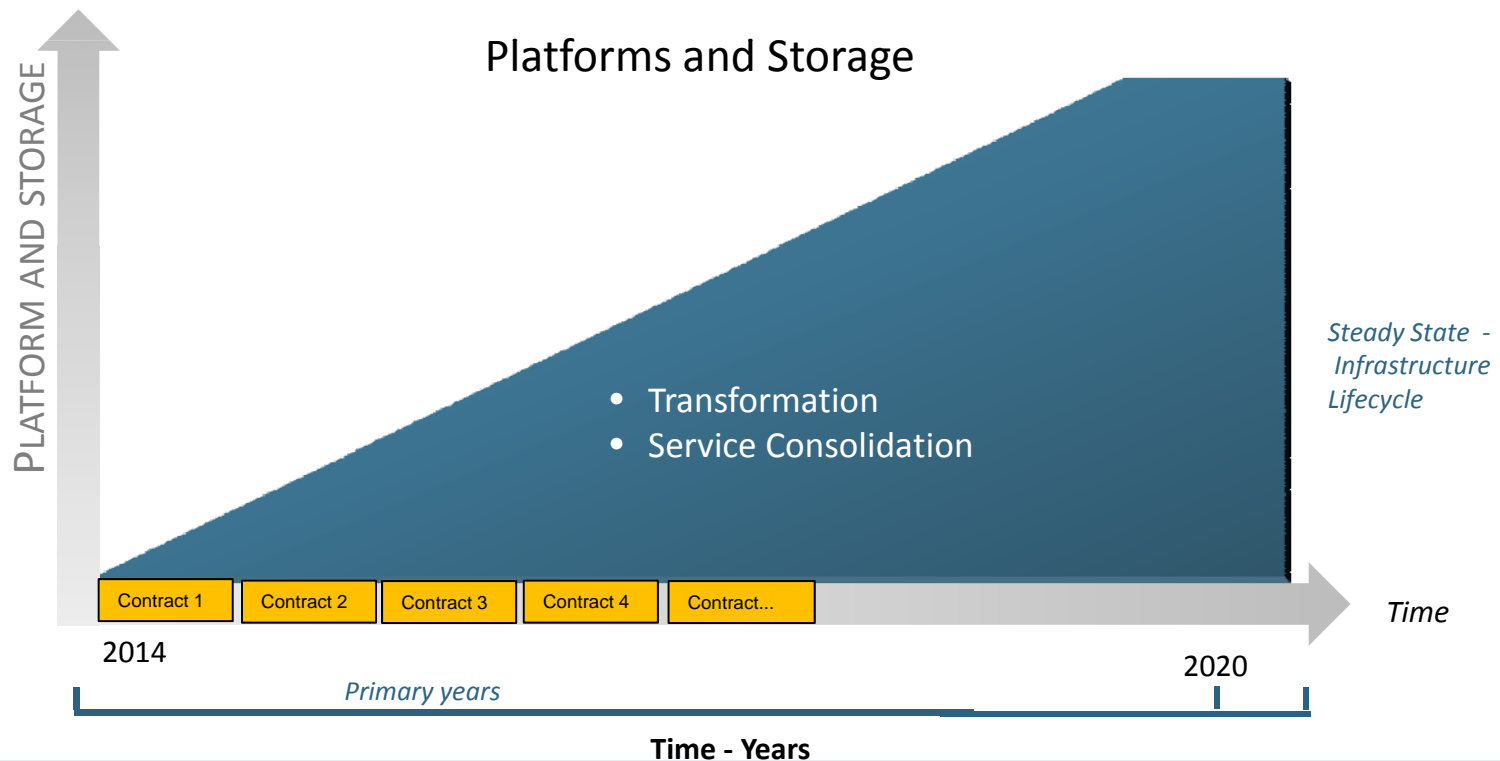


Topic: Contract(s) Period and Terms

Discussi
Topi

3

- Recommended contract length (including option years)?
- What is the best type of vehicle (supply arrangement / standing offer / standard contract / other) ?
- Adding and subtracting services during the contract (substitution of services)?

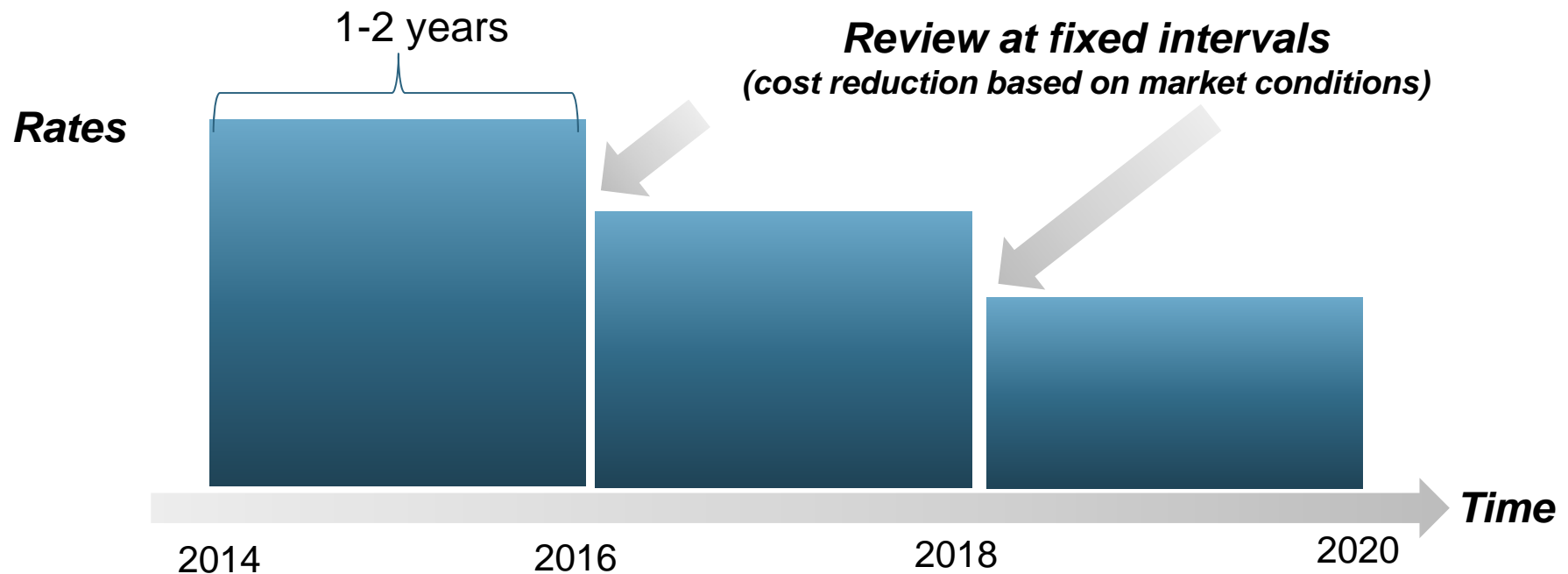


Topic: Pricing Options

Discussi
Topi

4

- Numerous pricing model options possible – adapt to elasticity, to meet business demand?
- Pricing reviews at fixed intervals (based on market conditions) over the period of contract(s) advisable?
- What are the factors that impact cost?
- What are the levers to get best value? Basis of payment?



Questions for Industry Feedback

OPERATIONAL/TECHNICAL:

1. What Value-added services would you recommend that we should be incorporating?
 - Technical and operational considerations
 - Procurement considerations
2. Is SSC's proposed service catalogue comprehensive and meet industry best practices?
3. How can emerging trends/technologies be incorporated into the proposed solutions? How can we keep technologies up to date given length of transformation? How could they contribute to the Savings, Security and Service transformation objectives?
4. How can we leverage Government Furnished Equipment / assets, lessons learned, and previous experiences in delivering similar data centre service solutions?
5. How can we best utilize maximum pre-delivery configuration and integration?
6. What are the perceived barriers to success and risks that require mitigation strategies?
7. What technology, tools or features could be put in place to facilitate application migration?

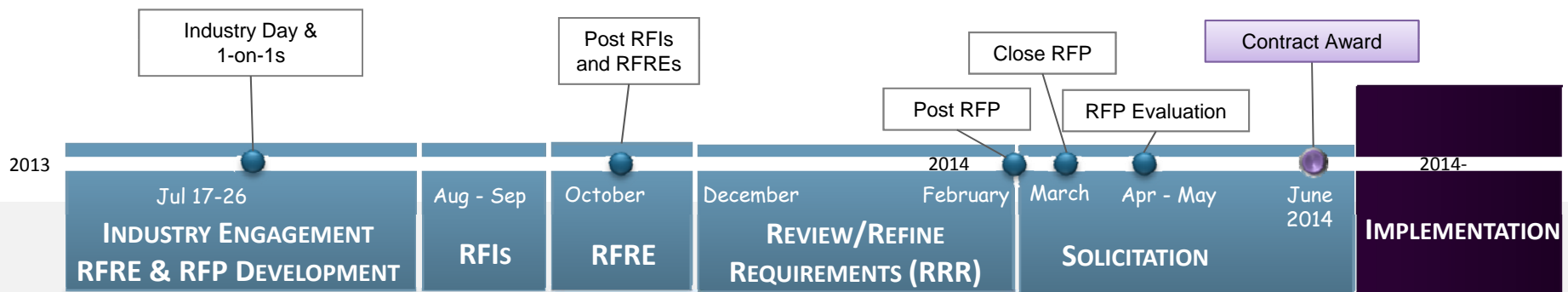
Questions for Industry Feedback

PROCUREMENT:

1. What Pricing Model would be most beneficial to Canada?
Are regular pricing reviews at fixed intervals over the period of contract(s) advisable?
2. What should contract length be (including option years)?
3. What usage-based or size-based licensing options, just-in-time capacity methodologies, innovative financing or other additional benefits related to the services provided can be leveraged to reduce our costs?
4. What recommendations can be provided on the approach for the technical evaluation of supplier proposals?
5. How could we modify requirements to maximize competitiveness and minimize costs? What are the levers that impact costs? What other opportunities are there to consolidate and rationalize that we may have missed?
6. What are views or feedback on proposed procurement timelines.
7. Where should services be bundled and where should they not, to achieve best value? Where do you see the opportunity space and what logical groupings exist?
8. Which services or components should be subject to RFI's?

Next Steps

- Industry one-on-one engagements* (45 min each) to be held July 22 - 26 to obtain feedback on the discussion topics
 - Industry feedback will be incorporated into the statement of work
- Initiate next phase of the procurement process - RFI and RFRE



Note: suppliers must have pre-registered for the one-on-one sessions



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Collaborative Procurement Solutions Approach

Stéphane Richard

Senior Director, Procurement and Vendor Relationships

Shared Services Canada

July 17, 2013



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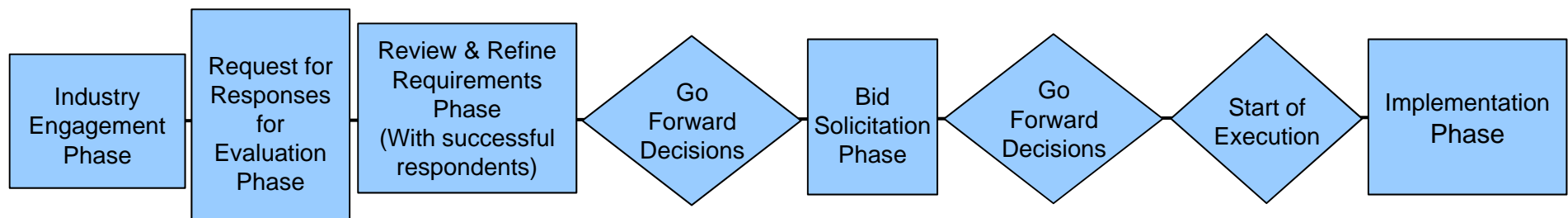
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Approach – Collaborative Procurement Solution

Description

- An iterative approach to requirements definition involving a limited number of vendors
- Reduce the probability of incompletely defined requirements leading to change requests
- Requirements will reflect what Industry can provide cost-effectively and rapidly while meeting GC constraints
- Define contract terms and conditions in collaboration with Industry
- Provide opportunity to generate new ideas based on industry input



Request for Responses for Evaluation (RFRE) Phase

- The purpose is to qualify suppliers who have demonstrated and proven skills and experience in implementing and operating DC services.
- Evaluation criteria will focus on the supplier's capabilities and experience to deliver DC services.
- Canada will inform Successful Respondents that, in the “Review and Refine Requirements Phase”, a draft Statement of Work (SOW) will be provided to them, and once the SOW is finalized, Successful Respondents will be requested to submit their list of IT products (equipment, software, services and network diagrams) as part of Canada's Supply Chain Integrity (SCI) process.

Review and Refine Requirements (RRR) Phase

- Canada will provide the Successful Respondents with a draft SOW.
- Canada will collaborate with Successful Respondents to seek feedback and clarification on Canada's requirements to refine the SOW (e.g. one-on-one sessions, Q's and A's, written submissions, etc.).
- Once the SOW is finalized, Canada will request that the Respondents provide their list of IT products and a network diagram.
- Canada intends to conduct the Supply Chain Integrity (SCI) verification over a period of 10 calendar days to ensure that all IT products and the network diagram meet Canada's security and supply chain standards.

Review and Refine Requirements (RRR) Phase (continued)

- Upon completion of the SCI verification process, Canada will provide Respondents with written notification informing them if their IT product list and network diagram are approved.
- If a Respondent's IT products list is not approved, the Respondent will be briefed and have 10 calendar days following the receipt of Canada's written notification to resubmit their IT products list and if necessary, their network diagram.
- If the Respondent's IT products list is rejected a second time, there will be no further opportunities to resubmit a new IT products list and the Respondent will not be qualified to proceed to the next phase in the procurement process.
- Respondents whose IT product list and network diagram are approved by Canada will be deemed Qualified Respondents and will proceed to the "Bid Solicitation Phase".

Bid Solicitation Phase

- Canada may issue one or more formal Request for Proposal (RFP) solicitations to the Qualified Respondents who have successfully passed the RFRE and RRR Phases.
- Each Qualified Respondent will be permitted to formally bid on the requirements set out in the RFP(s).

Contract Award and Implementation

- Contract Award will take place upon completion of the evaluation during the Bid Solicitation Phase.
- One or more contracts may be awarded as a result of the Request for Proposal(s).



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Supply Chain Integrity

Patrick Mountford, Director, Cyber Security Strategy

Christian Caron, A/Manager, Cyber Threat Assessment Unit

Shared Services Canada

July 17, 2013

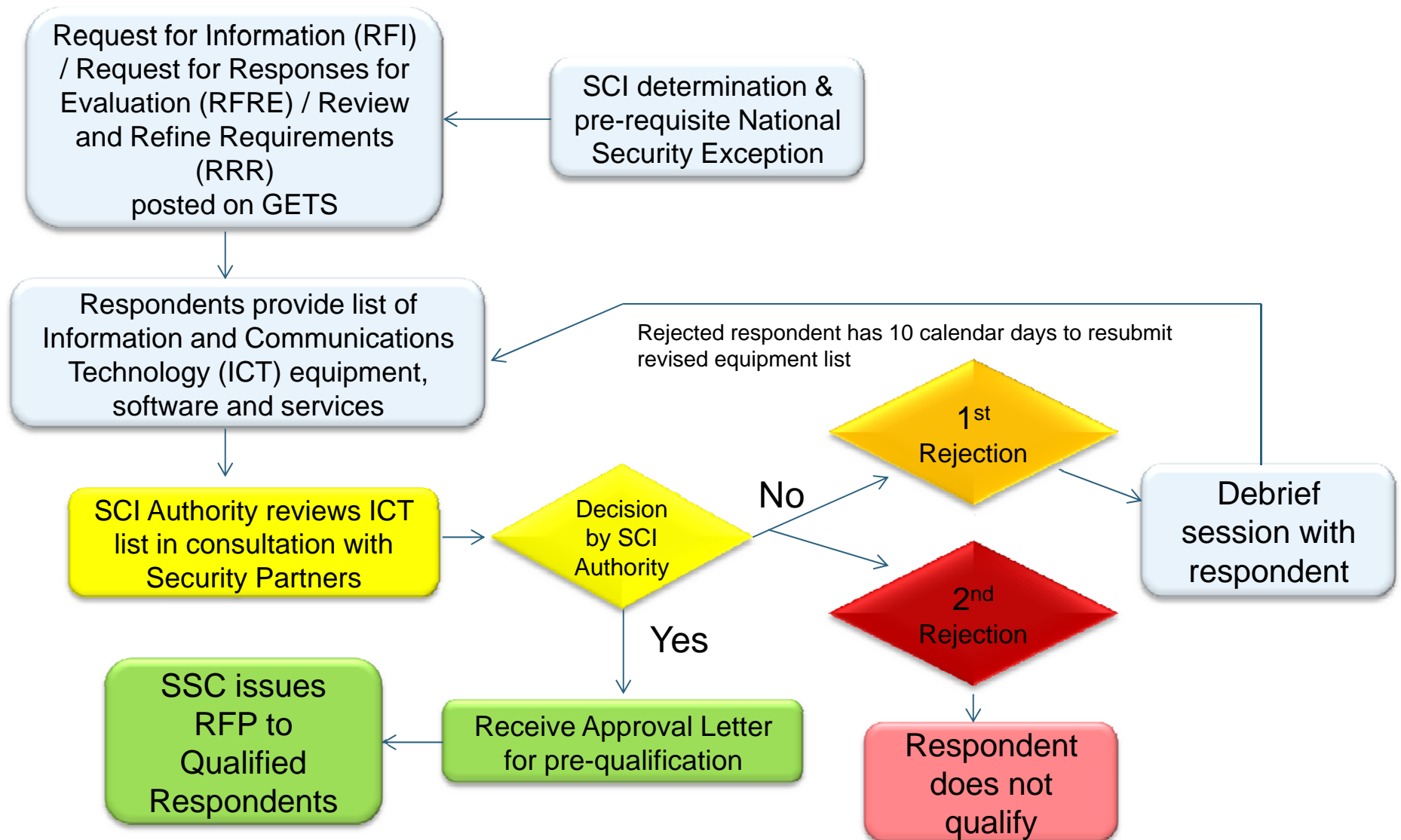


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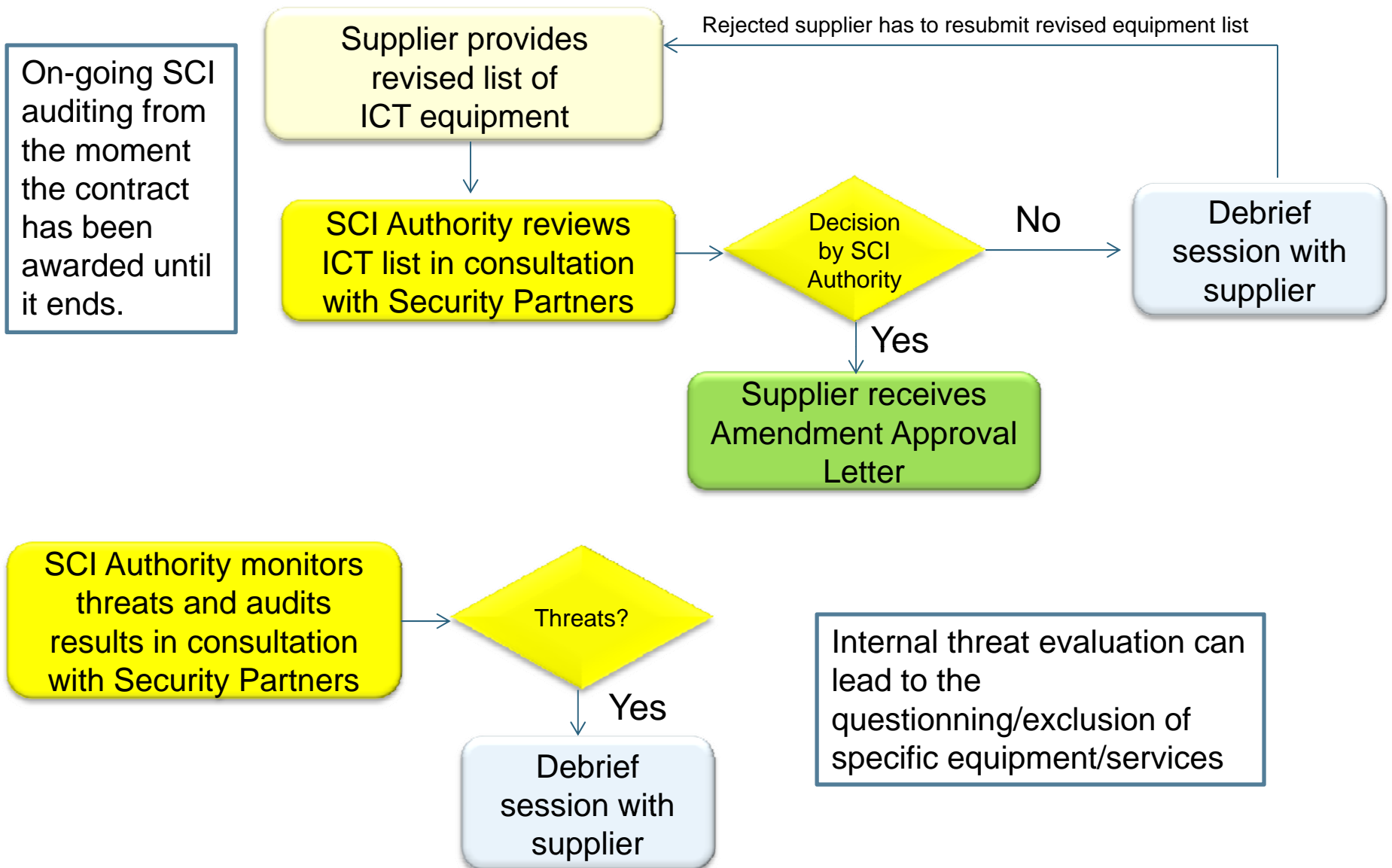
Two-Step Process



Required Information from the Respondents

- Once the SOW is finalized, GC will request that the respondents provide their list of IT products and services. More specifically, when it applies, the GC will be requesting the following detailed information:
 1. List of equipment used to deliver the service (vendor manufacturer, model number, software load version).
 2. List of managed services (names of companies and the location from where these services are delivered).
 3. Conceptual network diagrams showing third party dependencies and interconnections (includes physical and logical network topology, depicting the nodes and connections amongst nodes in the network).
 4. All of the above applies for sub-contractors and partners (sub-contractor and their own sub-contractors). This should include all companies who will be sub-contracted to provide equipment or services as part of the DCC project.

On-going Supply Chain Integrity Auditing





Cyber & Supply Chain Threats to the GC

Data Centre Consolidation Industry Day

July 17, 2013

Carey Frey, Communications Security Establishment Canada



CSEC: What We Do

- CSEC: Canada's national cryptologic agency
- Our Mandate
 - Foreign Signals Intelligence
 - IT Security
 - Support to Lawful Access
- 'B' Mandate
 - To provide advice, guidance and services to help ensure the protection of electronic information and of information infrastructures of importance to the Government of Canada



CSEC: IT Security Program

- We help prevent, detect and defend against IT security threats and vulnerabilities
- CSEC provides unique technical expertise, capabilities and classified information that we use to complement commercial security technologies available to IT security practitioners
- We use our own methods and operations to detect and defend against threats that are not in the public domain



Effects of Market Forces on Technology

- Market forces favour commercial and personal technologies over requirements for security features
- Our society is almost totally dependent on software and hardware commercial technology providers from global markets
- New products and new versions of products are rapidly produced
- No regulatory framework exists for hardware/software safety and security
- Traditional government policies and processes impose security requirements after products and systems have been developed
- Few incentives for commercial technology developers to invest in security



Technology Vulnerabilities

- “People write software sloppily. Nobody checks it for mistakes before it gets sold”
 - Peiter Zatkó (Mudge), WhiteHouse Cyber-Security Summit (2000)
- Unintentional vulnerabilities or weaknesses
 - Design flaws
 - Implementation errors
- **Cyber Threat** – a threat actor, using the Internet, takes advantage of a known vulnerability in a product for the purpose of exploiting a network and the information the network carries
- Intentional vulnerabilities or weaknesses
 - Predetermined deliverables can be implanted in a product with or without knowledge of company.
- **Supply Chain Threat** – a product can be easily tampered with in the supply chain to later facilitate a cyber-intrusion against that product in order to exploit a network and the information the network carries



The Evolving Cyber-Threat

- Today, malicious cyber activities are directed against Canada and our closest allies on a daily basis
- Threat actors range in sophistication from malfeasant hackers to organized crime groups, to terrorists to nation states
- Canadians trust the GC to defend Canada's cyber sovereignty and protect and advance our national security and economic interests



An Issue of National Security

- **Risks from vulnerable technologies**

- Covert and persistent access by cyber threat actors in Canadian data centre / cloud infrastructures threatens the sovereignty of GC information and the continuity of government operations
- Cyber threat actors are effective at exploiting enterprise technologies and management systems used to administer and operate data centre / cloud infrastructures

- **Risks from the supply chain**

- Increases opportunities for threat actors to circumvent GC cyber security measures
- More difficult for the GC to detect and remediate



GC Shared Services Procurements

- **Shared Services Canada and CSEC are working in partnership to eliminate or significantly reduce risks to the GC from cyber threats & global supply chain vulnerabilities**
- **CSEC will provide follow-up briefings on supply chain risk mitigation to interested suppliers for GC shared services**
 - Companies must be willing to sign a CSEC non-disclosure agreement to receive this information
- **Security requirements for cyber-protection, cyber-defence and supply chain risk mitigation must be met by suppliers in order to successfully bid on GC shared services initiatives**
 - As the IT Security authority for the GC, CSEC will seek long-term partnerships with successful suppliers
 - CSEC will assist Shared Services Canada in the pedigree analysis of supply chain information provided by respondents
- **Examples of these requirements can be found on CSEC's website under Technology Supply Chain Guidance**



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Questions & Answers



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Wrap-up & Closing



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Additional Material

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17 July 2013

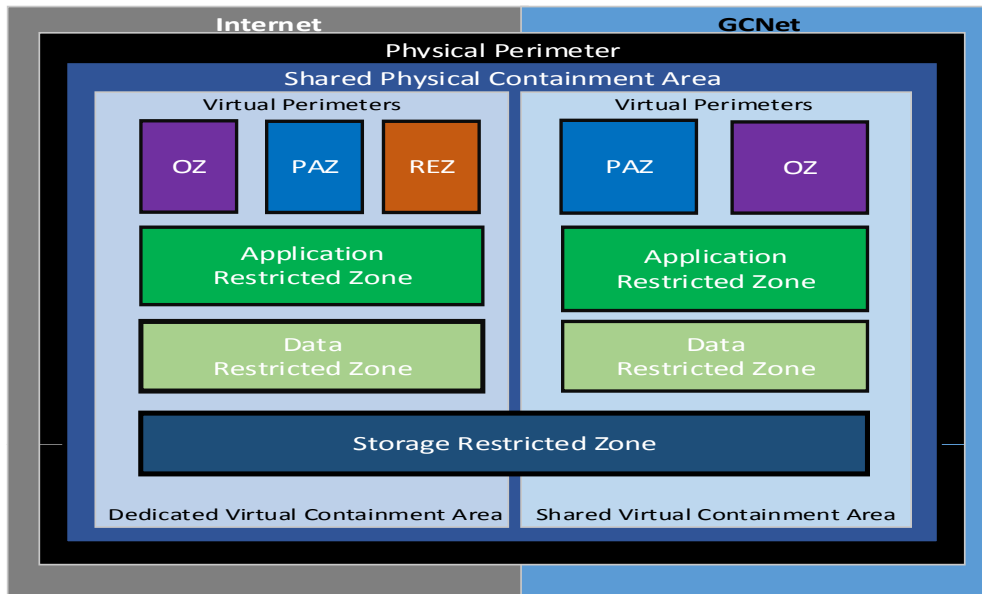


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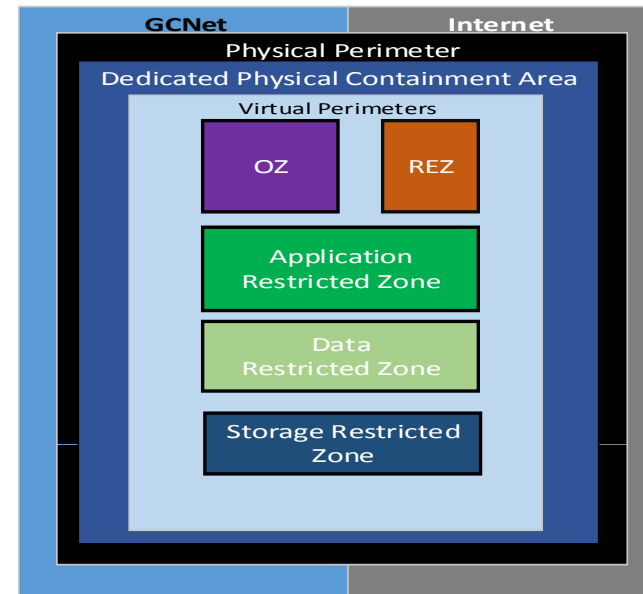
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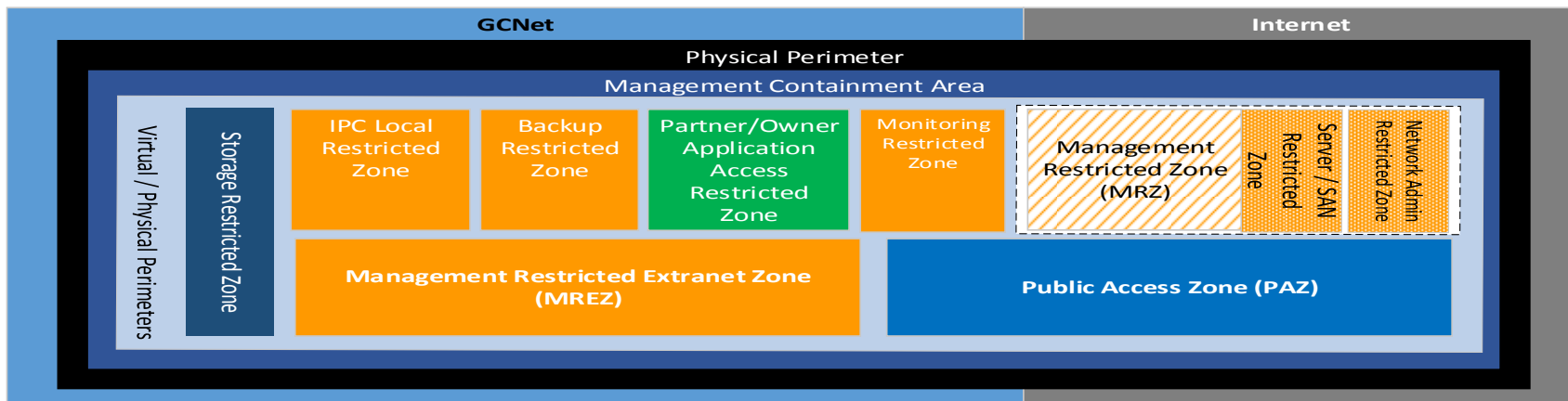
Workload and Data Containment in the Data Centre



Production and Development Data Centres



Production and Development Data Centres



GC Domains & Zones Standard

Partner & User Facing Services

- **Application Hosting:**

- Provides two standardized “Platform as a Service” (PaaS) options for Partners’ COTS and Consumer-Built applications:
 - Managed Operating System (OS) Platform service provides management of the “OS and Below”
 - Optional 3-tier Managed Application Platform with standardized database and platform middleware (Windows, J2EE and LAMP) and full management of “Everything but the Application”

- **Database Hosting:**

- Provides a standard solution specific to the needs of Partner Databases
- “Platform as a Service” (PaaS) includes middleware and tools for leading databases, residing on SSC’s standard managed Computing and Storage Infrastructure.
- Partners can provision their own databases and virtual resources

Partner & User Facing Services

- **Standard Development Environment:**

- Platform service for developing/maintaining business systems for SSC's standardized cloud-based environment.
- Includes instances of 3-tier architecture deployed across five development phases (Dev, Test, UAT, Pre-Prod, and Training).
- Transformation option is provided for transforming mature business systems (legacy) to run in SSC's standardized cloud based environment.

- **Data Warehouse:**

- PaaS solution for Partners for data mining, query and reporting, complimented by Business Intelligence tools
- Includes suite of ETL (Extract, Transform and Load) tools to move transactional data to Data Warehouse Hosting platform.

- **File Service (GCDrive):**

- Centralized, highly scalable, secure online storage solution for unstructured data and files.
- Includes: Search, Encryption, Daily Backups and Offsite Archival, Anti-Virus & Malware Scanning, Multi-Format Support, Document Quick View, File Versioning, User Trace & Audit, and Policy based User quotas.

Partner & User Facing Services

- **High Performance Computing:**

- Fully managed platform for consumers with extreme performance computing needs
- Basic service for intermittent computing needs supports self-service provisioning
- Enhanced service for steady state heavy computing demands and supporting services for specialized configurations

- **Distributed Print Service:**

- Allows users to print from anywhere and any device to any printer allowed by their User Account
- Includes centralized monitoring and management of policies, printers and consumption

- **Bulk Print Service:**

- For consumers requiring very high volume and specialized print media
- Fully managed with high volume distribution and mailing capabilities in secure, centralized printing facilities

DC Enabler Services

- **Compute & Storage Provisioning Service:**
 - Highly available, secure and fully managed capability for computing and storage
 - Compute: Fully managed virtual infrastructure platform with container isolation for Guest OS and Workloads (Physical Bare Metal and Virtual Machine)
 - Storage: Various levels of data protection, data availability and data performance, in highly available online data repository
- **Virtual Desktop Infrastructure:**
 - Fully managed platform service for hosting virtualized desktops and common office applications
 - Allows users to access full featured virtual desktop from anywhere, using a Desktop PC or thin client
 - Provides significant TCO savings and rapid provisioning for users
- **Backup / Recovery Service:**
 - Storage capacity for copies (backup) of data used for point in time data and system recovery in the event of failure or loss
- **Data Archival Service:**
 - Secure storage of older/less- utilised data, for longer-term retention; data are indexed and accessible by business users
- **Facilities Management:**
 - Management of the physical assets for building space, security, power, backup power, climate, fire and cable plant as well as external Co-location services and hands-on support services to other Enabler Services (onsite feet on the ground)
- **Remote Admin Service:**
 - Provides SSC system and Partner application administrators the ability for remote access

Common Capabilities For All Services

- Services reside on SSC's Standard Fully Managed Computing, Storage and Network Infrastructure, in secure & robust Data Centres or authorized external service providers
- Industry standards ensure Service Offerings & Requests are compatible with leading Tools for Portfolio, Service Catalogue, Self-Service and Auto-Provisioning
- Supporting Services:
 - Lifecycle Service & Systems Management Practices & Tools (ITIL 2011 + NIST + DC Mgmt, etc.)
 - Exposes / Integrates aspects of DC Service Management with Partners' & Providers Service Mgmt
 - Lifecycle Technical Support for Partners developing, maintaining and using DC Services
 - Subscriber Services
 - Professional Services
- Standard Tiered Service Levels *(Service Level Targets & Commitments for each Tier)*
- Standard Tiered Service Capabilities *(Activities & Tools needed to deliver each service, and specified Service Level Targets)*