NC Department of IT Overview
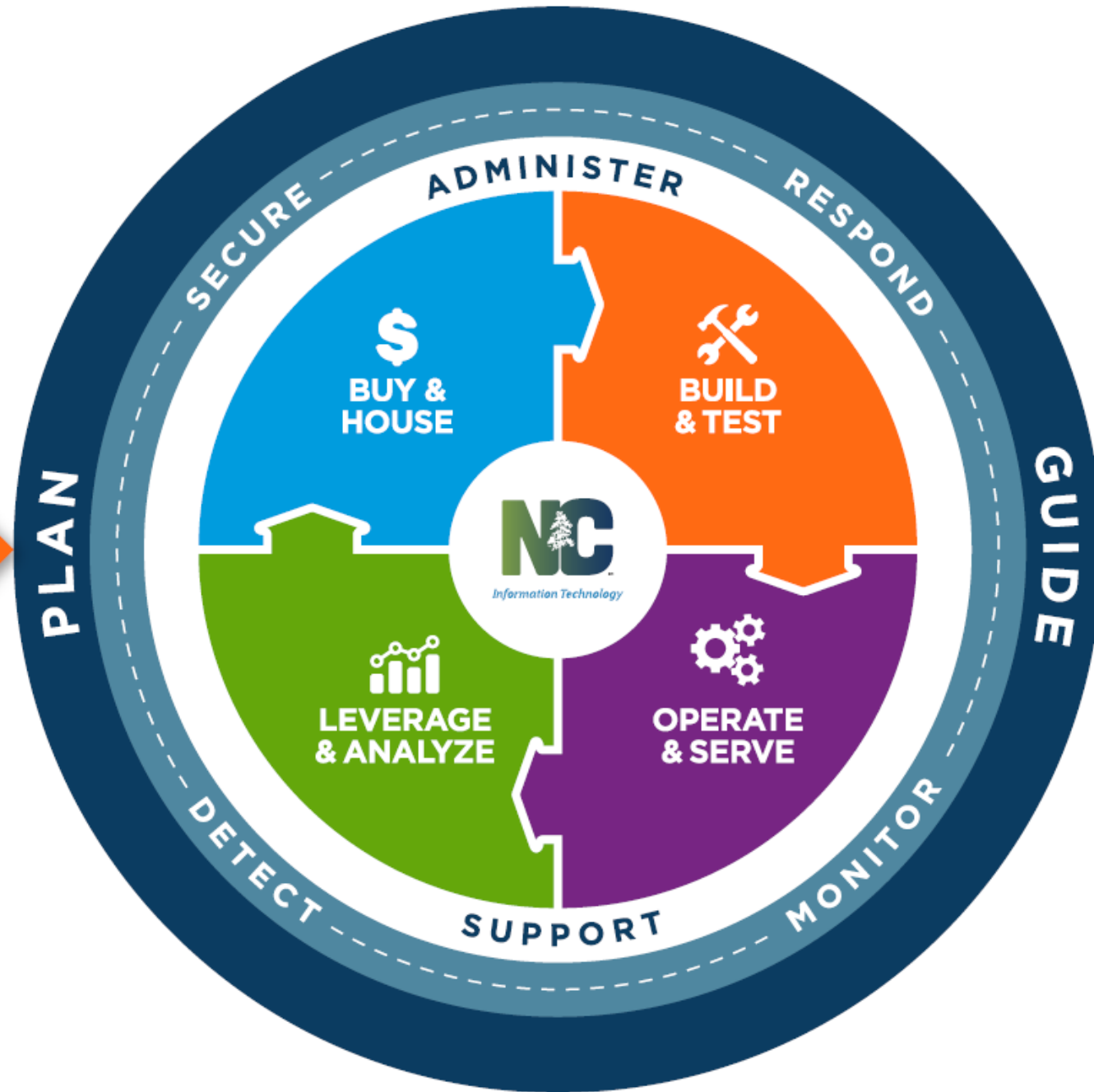
Jon Minshew

July 11, 2017

Innovation Center (iCenter)

4,500+
Device Tests

3
National Awards

Savings of
$1.4M
Annual Digital
Storage Costs

Savings of
$7M
Renegotiated
Contracts

Government Data Analytics Center (GDAC)

- NC Financial Accountability and Compliance Technology System (**NCFACTS**)

- Criminal Justice Law Enforcement Automated Data Services (**CJLEADS**)

- North Carolina SAS Enterprise Authentication Tool (**NCSEAT**)

- North Carolina Early Childhood Integrated Data System
- (**NC ECIDS**)

GDAC Data Visualization Studio

NC

Broadband Infrastructure Office (BIO)

Mission

Provide guidance on policies and strategies for community and state leaders to enhance high-speed internet access for global competitiveness, education, public safety, health care, and government efficiency. Partner with willing communities to provide on-the-ground strategic, technical, and planning assistance specifically aimed at expanding broadband deployment and adoption.

NC DIT BIO visits Advanced SuperAbrasives plant in Mars Hill, N.C.

Service Delivery

Who We Are:

○ Product Management and Engineering

○ Enterprise Applications and Infrastructure Operations

○ Customer Service/ Service Support

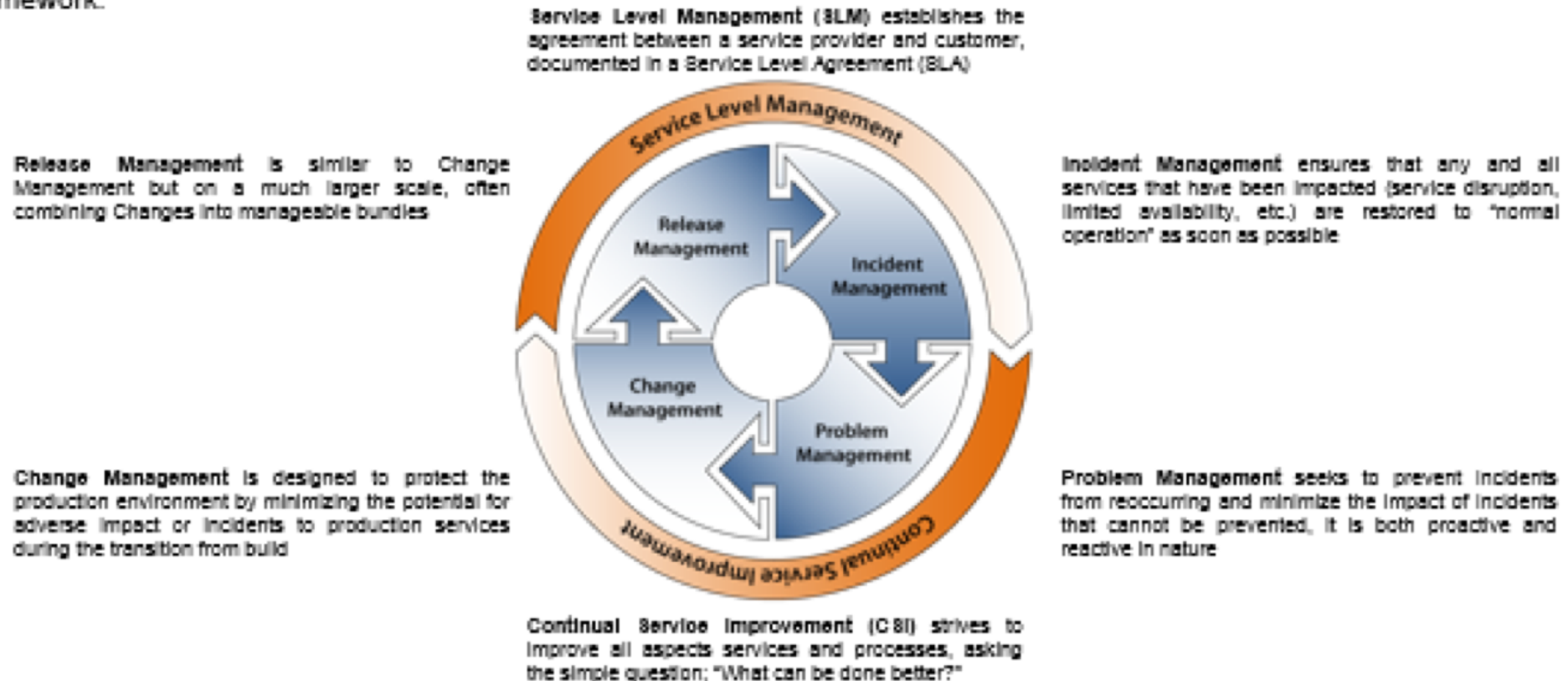○ IT Service Excellence

What We Do:

The Service Delivery Division provides a wide range of information technology services to State agencies, local governments, and educational institutions across North Carolina. Our services include enterprise applications, hosting, network, telecommunications, desktop computing, and unified communications such as email and calendaring. Providing **IT Service Excellence** through our service delivery across agencies allows the State to realize efficiencies and cost savings through economies of scale.
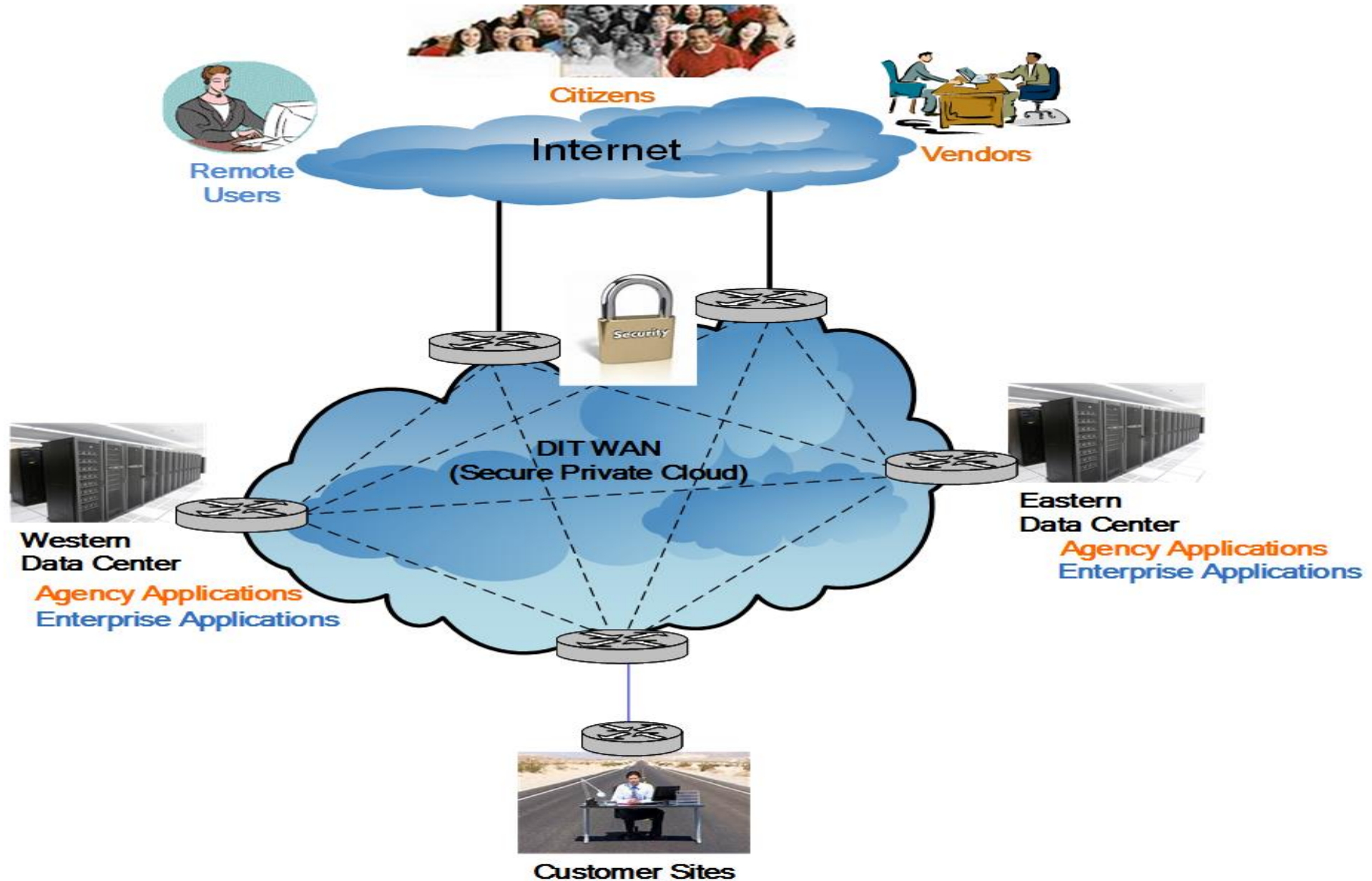
Common Collaboration:

○ State Agencies

○ Local Governments

○ Educational Institutions

NC

IT Service Excellence

The **IT Service Excellence Team** oversees the development of **IT Service Management (ITSM)** policies, processes and procedures that govern the delivery of **DIT services** utilizing the **Information Technology Infrastructure Library (ITIL)** framework.
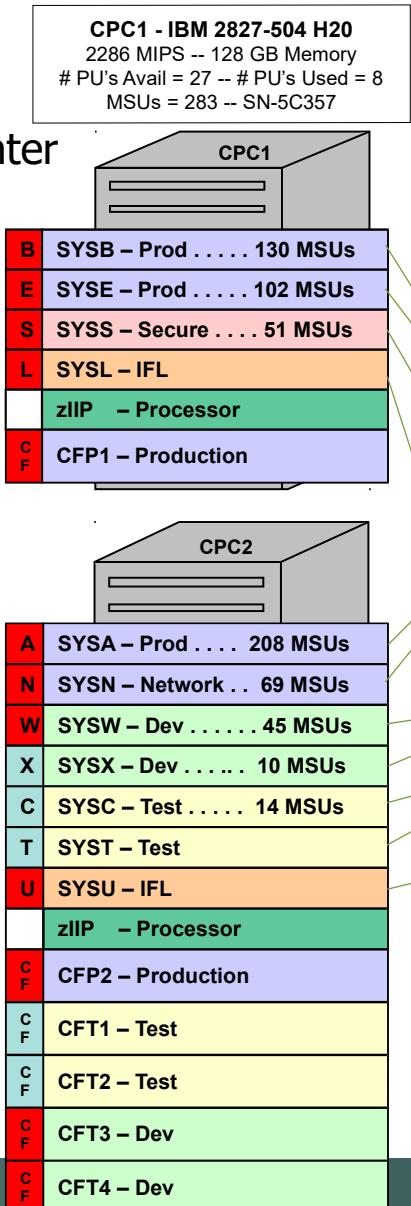
Service Level Management (SLM) establishes the agreement between a service provider and customer, documented in a Service Level Agreement (SLA)

Release Management is similar to Change Management but on a much larger scale, often combining Changes into manageable bundles

Incident Management ensures that any and all services that have been impacted (service disruption, limited availability, etc.) are restored to "normal operation" as soon as possible

Change Management is designed to protect the production environment by minimizing the potential for adverse impact or incidents to production services during the transition from build

Problem Management seeks to prevent incidents from reoccurring and minimize the impact of incidents that cannot be prevented, it is both proactive and reactive in nature

Continual Service Improvement (CSI) strives to improve all aspects services and processes, asking the simple question; "What can be done better?"

Network

DIT Mainframe System Structure

CPC1 - IBM 2827-504 H20
2286 MIPS -- 128 GB Memory
# PU's Avail = 27 -- # PU's Used = 8
MSUs = 283 -- SN-5C357

CPC2 - IBM 2827-505 H20
2806 MIPS -- 128 GB Memory
# PU's Avail = 27 -- # PU's Used = 9
MSUs = 347 -- SN- 5C387

WDC - IBM 2964-403 (N63)
697 MIPS -- 96 GB Memory
(CBU expand to 2964-708
11,188 MIPS -- 96 GB Memory)
MSUs = 88

Eastern Data Center
IBM z/Server Configuration
Total z/OS MIPS: 5092

Western Data Center
IBM z/Server Configuration
Total z/OS MIPS: 697 – 11,188

CPC1

B	SYSB – Prod . . . . . 130 MSUs
E	SYSE – Prod . . . . . 102 MSUs
S	SYSS – Secure . . . . 51 MSUs
L	SYSL – IFL
	zIIP – Processor
C F	CFP1 – Production

CPC2

A	SYSA – Prod . . . . 208 MSUs
N	SYSN – Network . . 69 MSUs
W	SYSW – Dev . . . . . . 45 MSUs
X	SYSX – Dev . . . .. . 10 MSUs
C	SYSC – Test . . . . . 14 MSUs
T	SYST – Test
U	SYSU – IFL
	zIIP – Processor
C F	CFP2 – Production
C F	CFT1 – Test
C F	CFT2 – Test
C F	CFT3 – Dev
C F	CFT4 – Dev

Sample of Production Workloads

SYSA	DHHS – ACTS
SYSB	DOT – STARS, OSC – NCAS
SYSE	DPS – OPUS, DES – GUIDE
SYSS	DOR/DES – ITAS

HITACHI VSP STORAGE PLATFORM

SYS A/B/E/N
SYSS
SYSW/X
SYSC/T
SYSL/U

GDPS XRC

HITACHI VSP STORAGE PLATFORM

Secondary
SYS A/B/E/N
SYSS
SYSW/X
SYSC/T
SYSL/U

Tertiary
SYS A/B/E/N
SYSS
SYSW/X
SYSC/T
SYSH

WDC

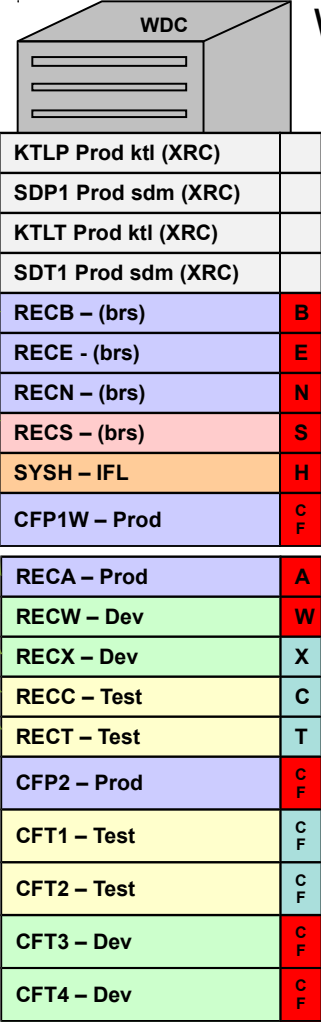| KTLP Prod ktl (XRC) | |
SDP1 Prod sdm (XRC)	
KTLT Prod ktl (XRC)	
SDT1 Prod sdm (XRC)	
RECB – (brs)	B
RECE - (brs)	E
RECN – (brs)	N
RECS – (brs)	S
SYSH – IFL	H
CFP1W – Prod	C F
RECA – Prod	A
RECW – Dev	W
RECX – Dev	X
RECC – Test	C
RECT – Test	T
CFP2 – Prod	C F
CFT1 – Test	C F
CFT2 – Test	C F
CFT3 – Dev	C F
CFT4 – Dev	C F

Legend
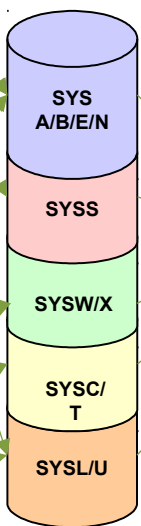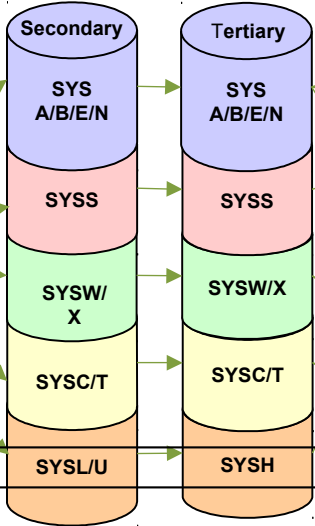
- SCCPLEX (68 GB)
- SCCPLEXS (10 GB)
- SCCPLEXW (18 GB)
- SCCTEST (4 GB)
- z/VM – EDC 148 GB, WDC - 4 GB, WDC (DRS) – 152 GB
- zIIP – z Integrated Information Processors
- Coupling Facilities (Prod – 4 GB)
- Coupling Facilities (DRS – 6 GB)

Disaster Recovery at Western Data Center

IBM 2817-403
MIPS 768 -- 112 GB Memory
PU's Avail = 6 -- # PU's Used = 6
Available MSUs = 53 – SN-B5D26

GDPS/XRC

Eastern Data Center

- Full Business Recovery: size SCCPLEX and SCCPLEXS
- Business Recovery: size SCCPLEX and SCCPLEXS with LPARS capped:
  - SYSA @ 23.4% of MIPS used for the sizing model
  - SYSB @ 28.0% of MIPS used for the sizing model
  - SYSE @ 11.3% of MIPS used for the sizing mode
  - SYSN @ 4.0% of MIPS used for the sizing model
  - SYSS @ 8.3% of MIPS used for the sizing model
- Extended Business Recovery: size SCCPLEX, SCCPLEXS and cap SCCPLEXW @ 20%
- Full Recovery: size SCCPLEX, SCCPLEXS and SCCPLEXW.
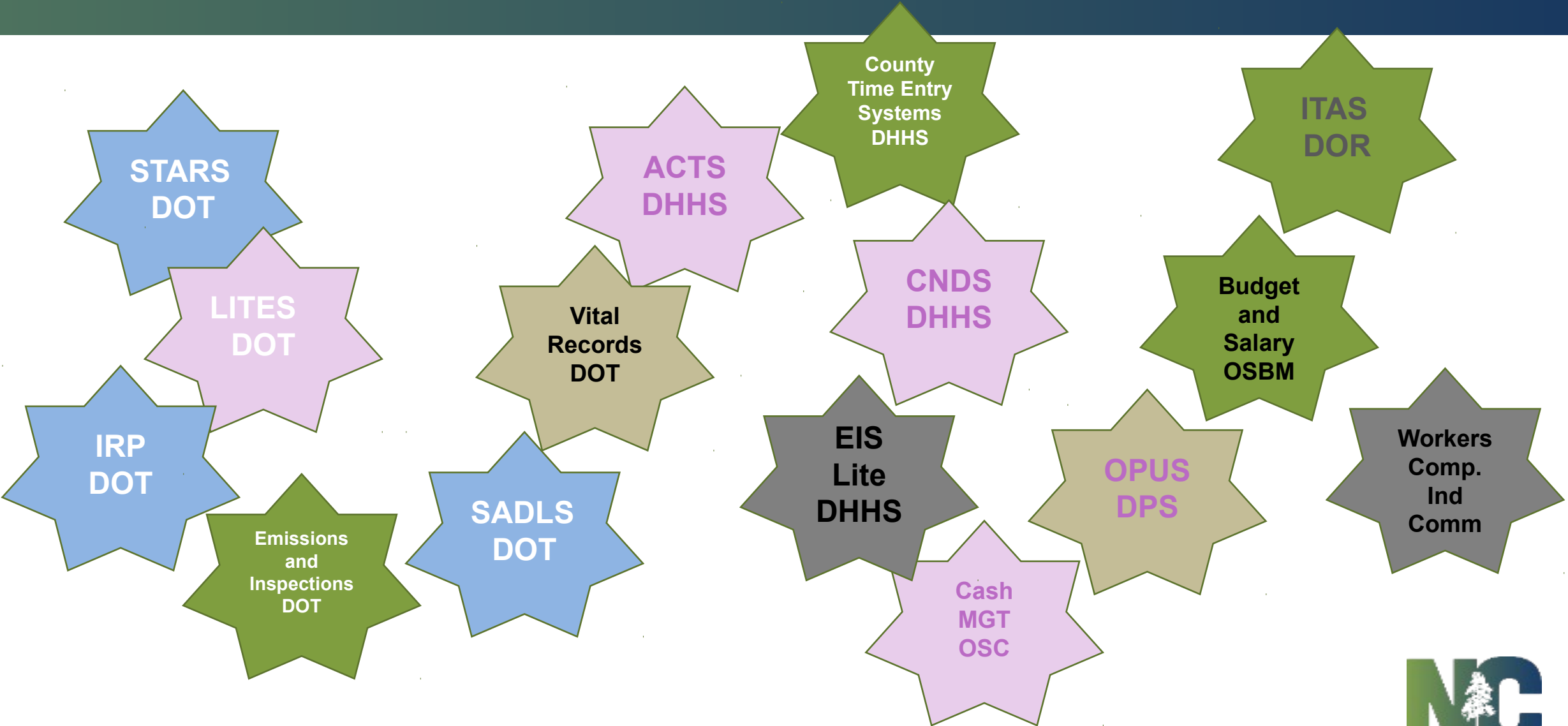
System z Environment

Strengths

System z applications are stable and scalable

Well-defined day-to-day operational processes around System z

Business recovery/disaster recovery supports rapid recovery in case of an incident

Favorable view of System z as consolidation platform for Oracle databases by some agencies

Reliable and Secure

Houses large amount of citizen and agency data (EDC ~= 60TB out of 3.1PB and in WDC ~= 120TB out of 2.1PB)

Opportunities

Newer System z technology makes getting current more compelling – later software versions run better on newer hardware

New workload opportunities for System z – new applications and server consolidation on Linux for z

Opportunity to modernize Vehicle Registration applications (STARS, LITES, IRP) would revitalize the applications

Improved billing/chargeback model could make System z more/most cost competitive shared platform

Supports Distributed Hosting Services
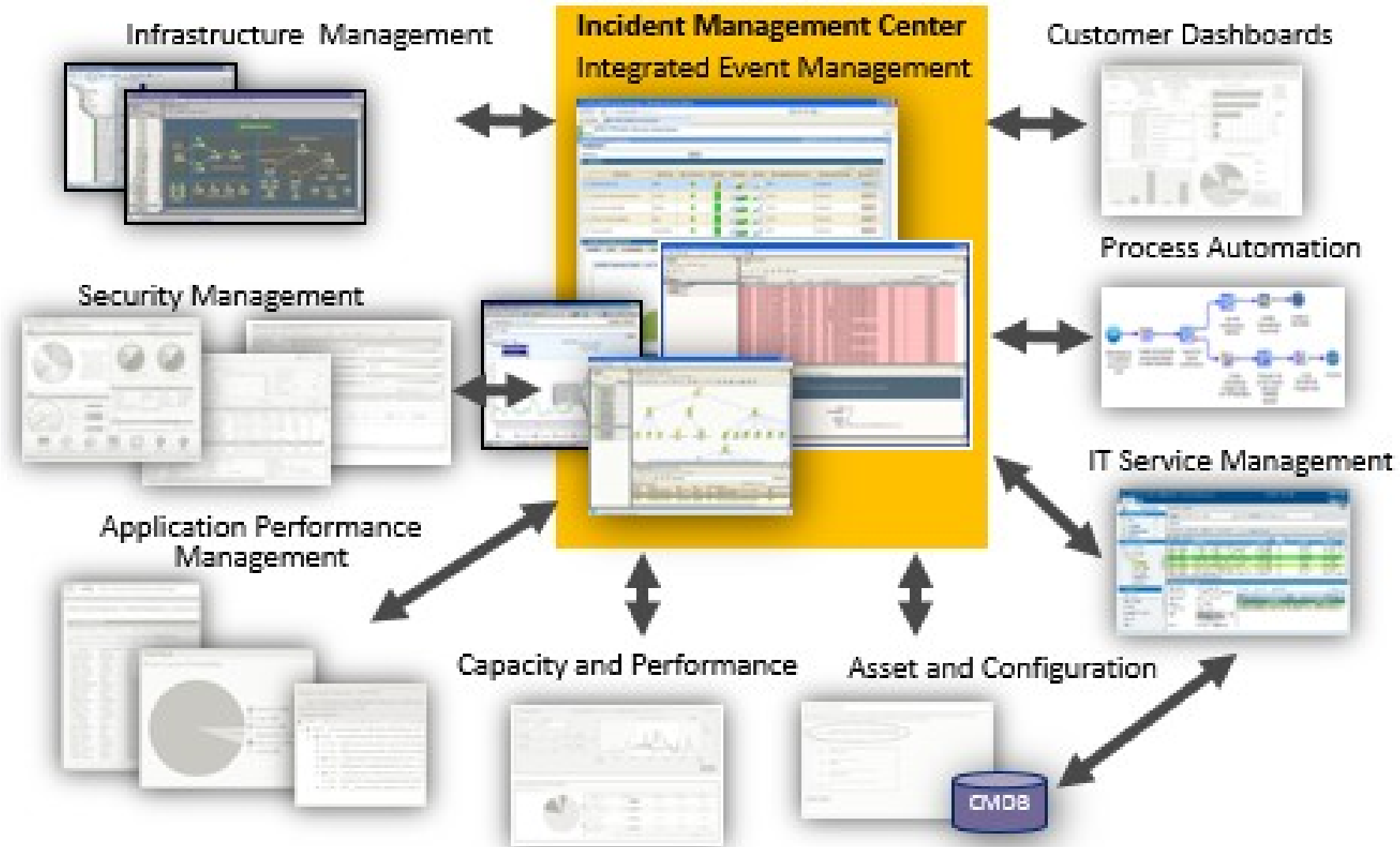
Strong SLA's Great Transaction Capability

Each Year's Goal Reduce Overhead

Hybrid Cloud Services

NCDIT Enterprise Integrated Incident Management Center

The NCDIT Incident Management Center
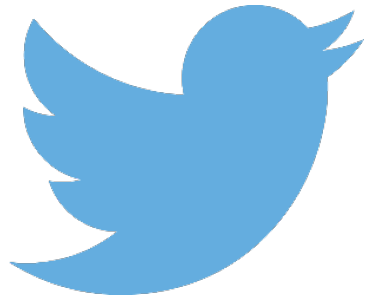## Before Redesign

The NCDIT Incident Management Center
After Redesign

Continuing the Conversation

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