Net-centric Characteristics

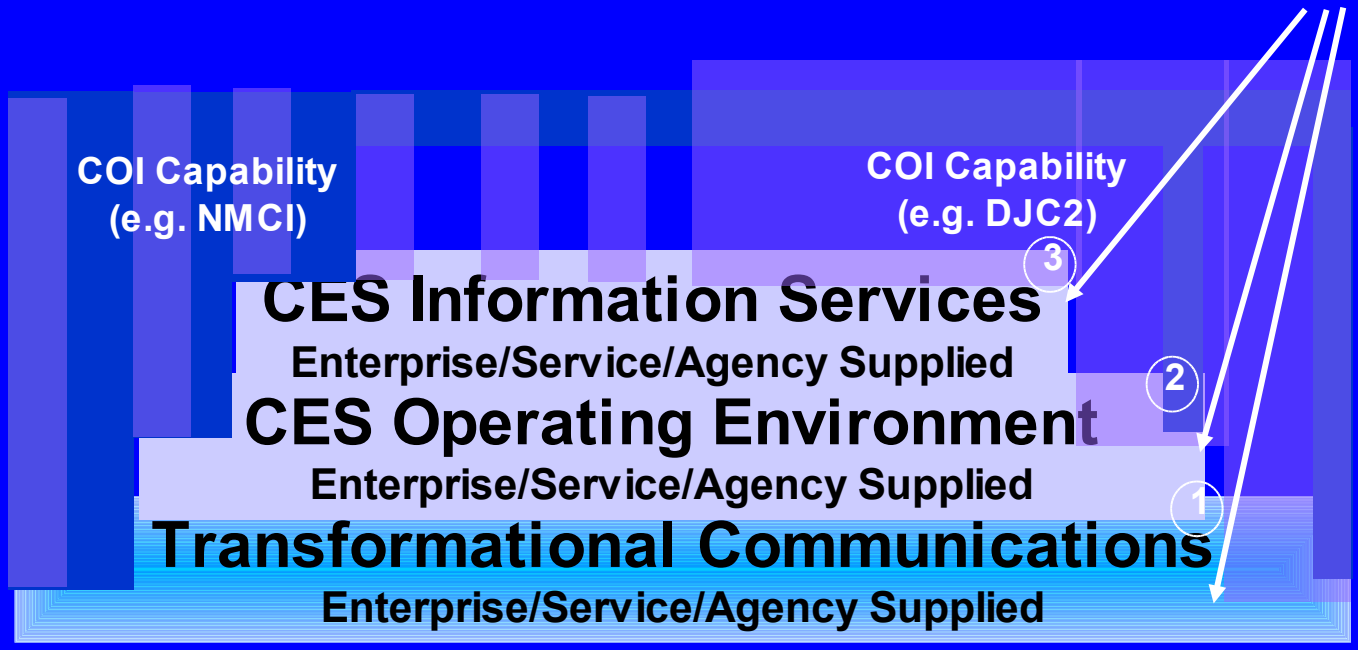
- **Heterogeneous**
  - Variety is essential and inevitable – basis for healthy evolutionary growth and survival within dynamic threat environment
- **Parallel**
  - Multiple implementation and concurrent use of components and processes – increases speed and provides fail-over capability
- **Market-driven**
  - Emphasizes Market principles vice top down direction to optimize – "Survival of the fit" (v. selection of the fittest from a single perspective)
  - Developers "experiment early and often" to find the right niche
- **Agile and adaptable**
  - Capable of rapid reconfiguration to meet new and unanticipated requirements or circumvent disruption
  - Expedient task-oriented collaborations vice static bureaucracy

The Solution:
A Layered Architecture for DoD's Future

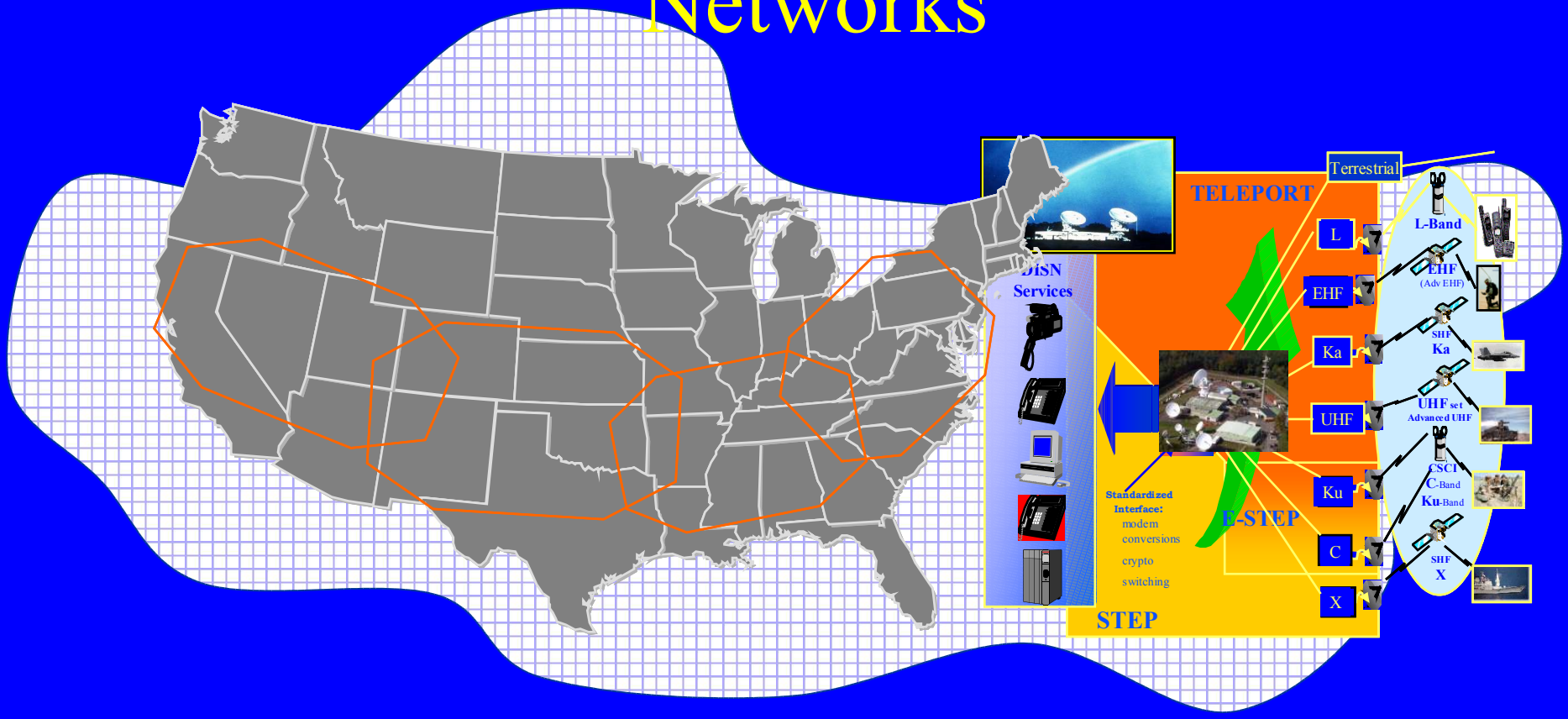
Standards Maturity

- Comms:
  IPv4 -> IPv6
- Applications, Storage, ESM, IA, User Assistance:
  Posix, Linux (Platform APIs)… -> Open Grid Services
- Directory, Discovery, Mediation, Messaging, Collaboration (Video, Audio, Data):
  APIs….-> Web Services

Standards-Based Service Definitions:
- Network Address(es)
- Payload Information (Data & Service)
- Descriptor Attributes (e.g. Service Quality, Security, Version #)



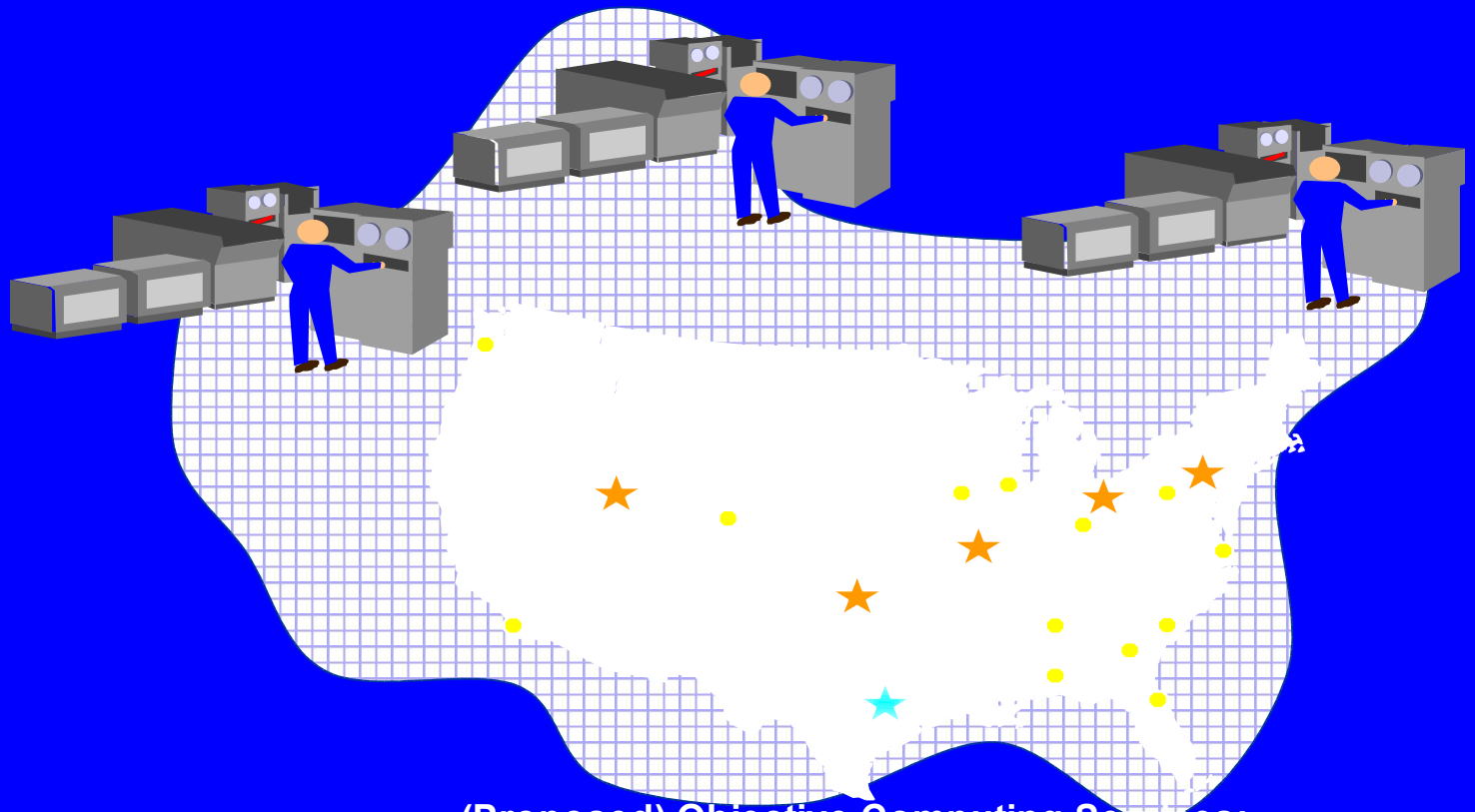
Networks



(Proposed) Objective DISN Services:

- *SLA-based (Converged) Voice, Video, Data Services*
  - *End-to-End Qos*
  - *Dynamic Provisioning, Self-Healing, Self-Configuring (e.g. Mesh Networks)*
  - *Cacheing, Content Delivery, MultiCast,*
  - *"Bandwidth on Demand"*
  - *Effective, Efficient Acquisition & Management*

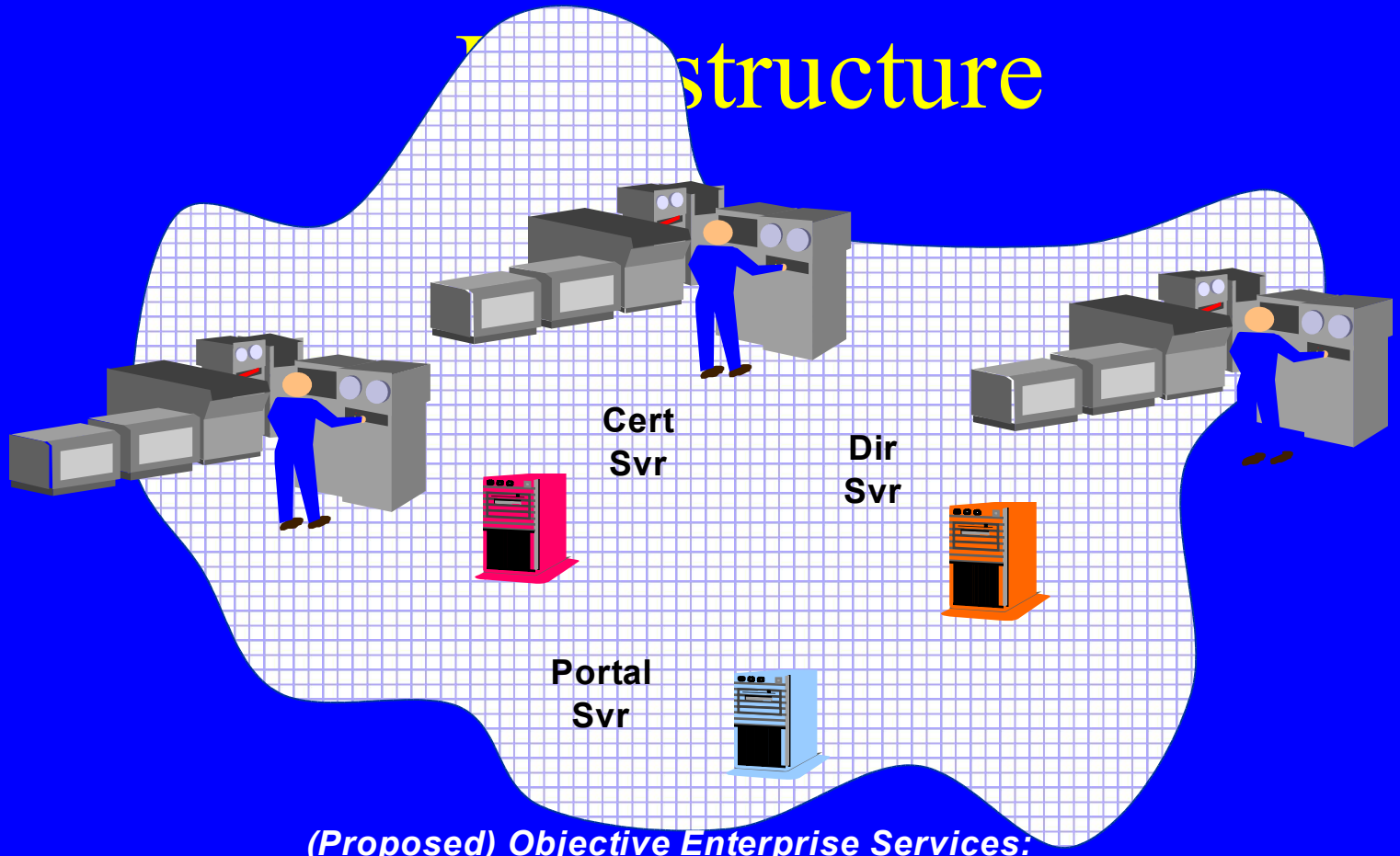
Hosting



(Proposed) Objective Computing Services:

- *SLA-based MIPS and Bytes*
  - *Capacity on Demand (e.g. Grid & Autonomic Computing)*
  - *Dynamic Storage Provisioning*
  - *Reliable Data Distribution and Replication*
  - *Effective, Efficient Acquisition & Management*

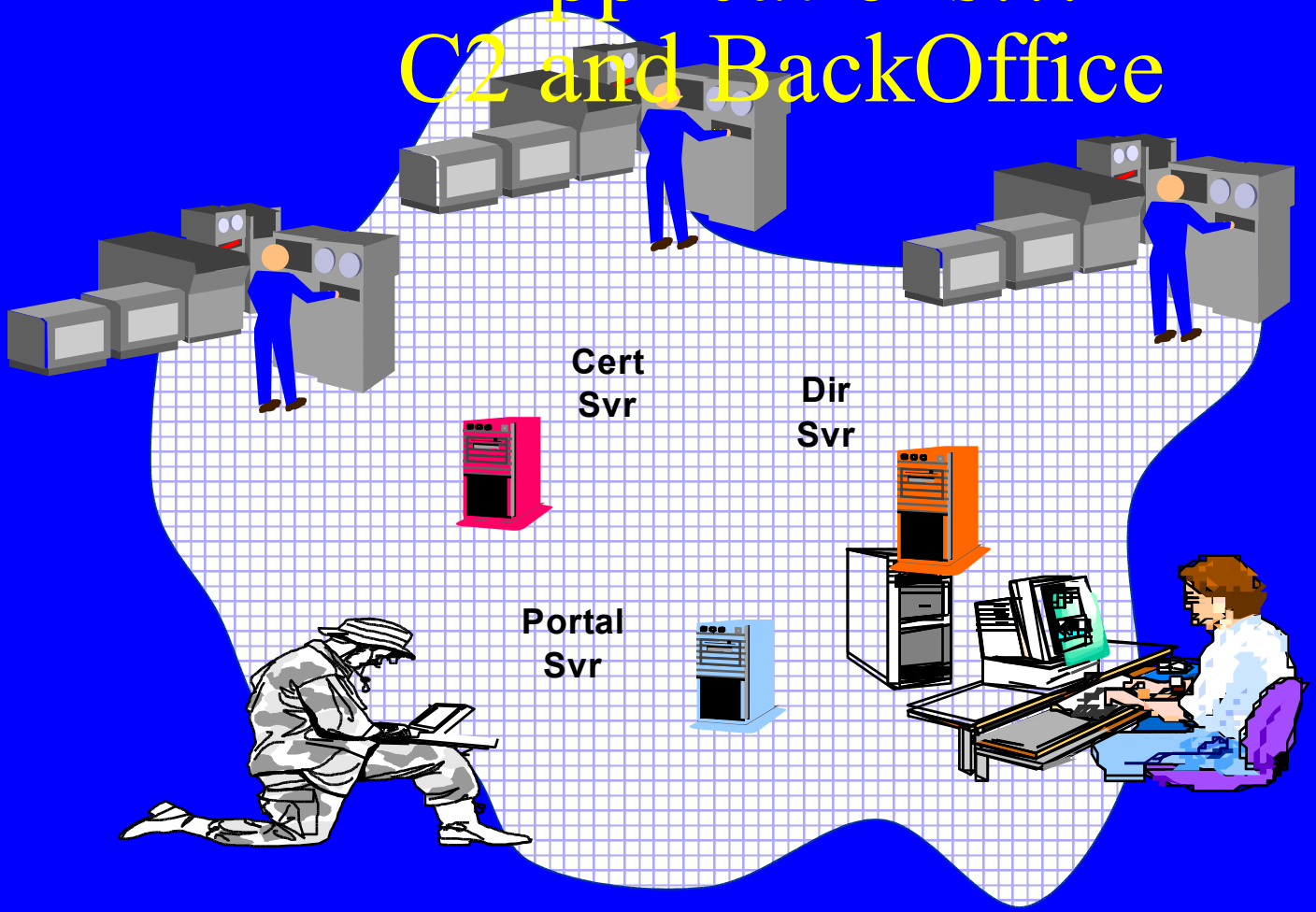
Infrastructure



(Proposed) Objective Enterprise Services:

- ***Building Blocks for Secure Integration of Applications and Data Sources***
  - ***Identification & Authentication***
  - ***Directory***
  - ***Messaging & Transactions***
  - ***Information Management (Discovery, Access, Dissemination)***
  - ***Collaboration***

Applications…
C2 and BackOffice

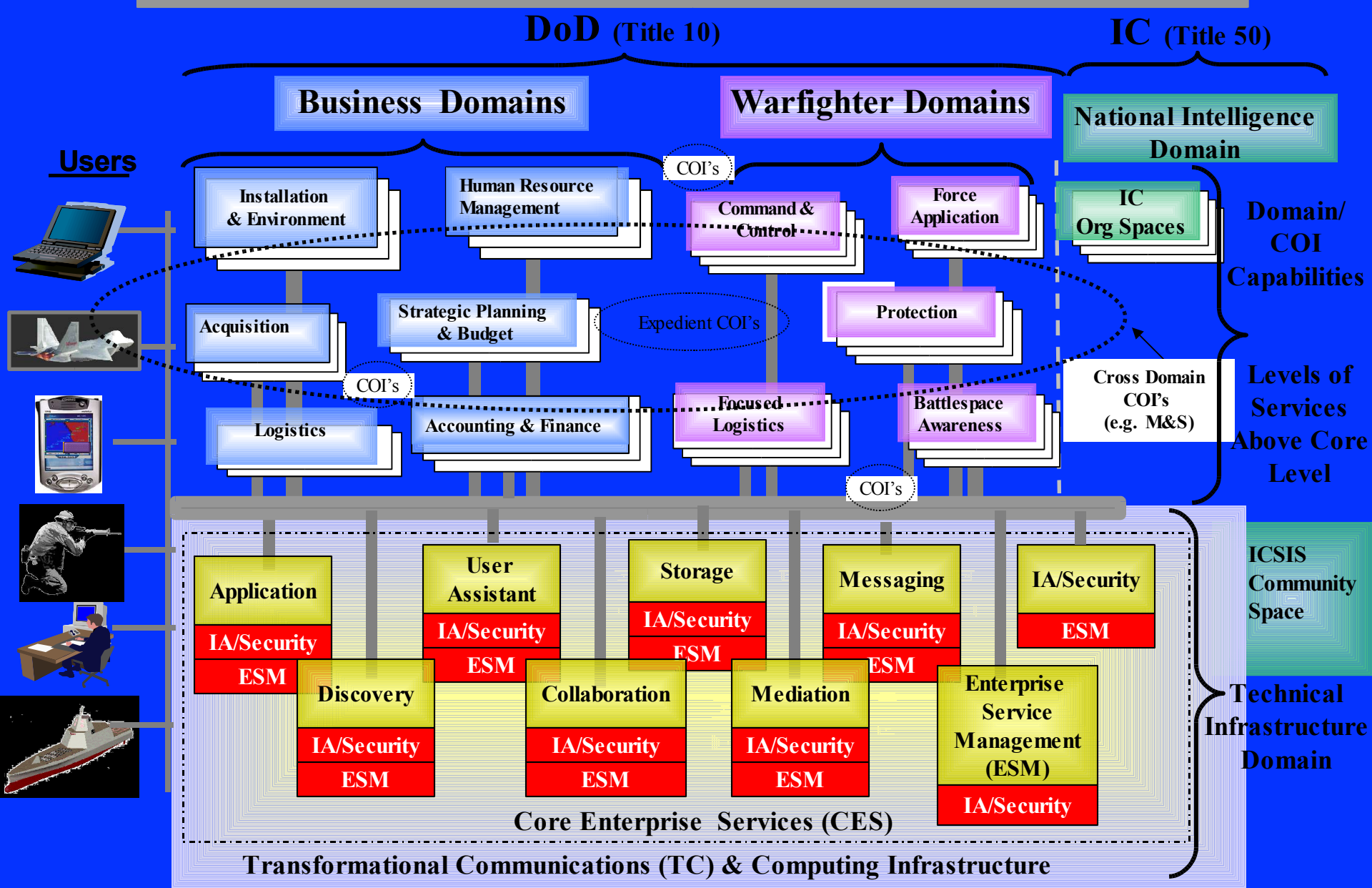


(Proposed) Objective Applications & Data Sources

- ***Community of Interest Functionality***
- ***Secure, Interoperable Plug-n-Play Data Sources and Applications***

GIG Enterprise Services

Support real-time & near-real-time warrior needs, and business users



From Systems to Services

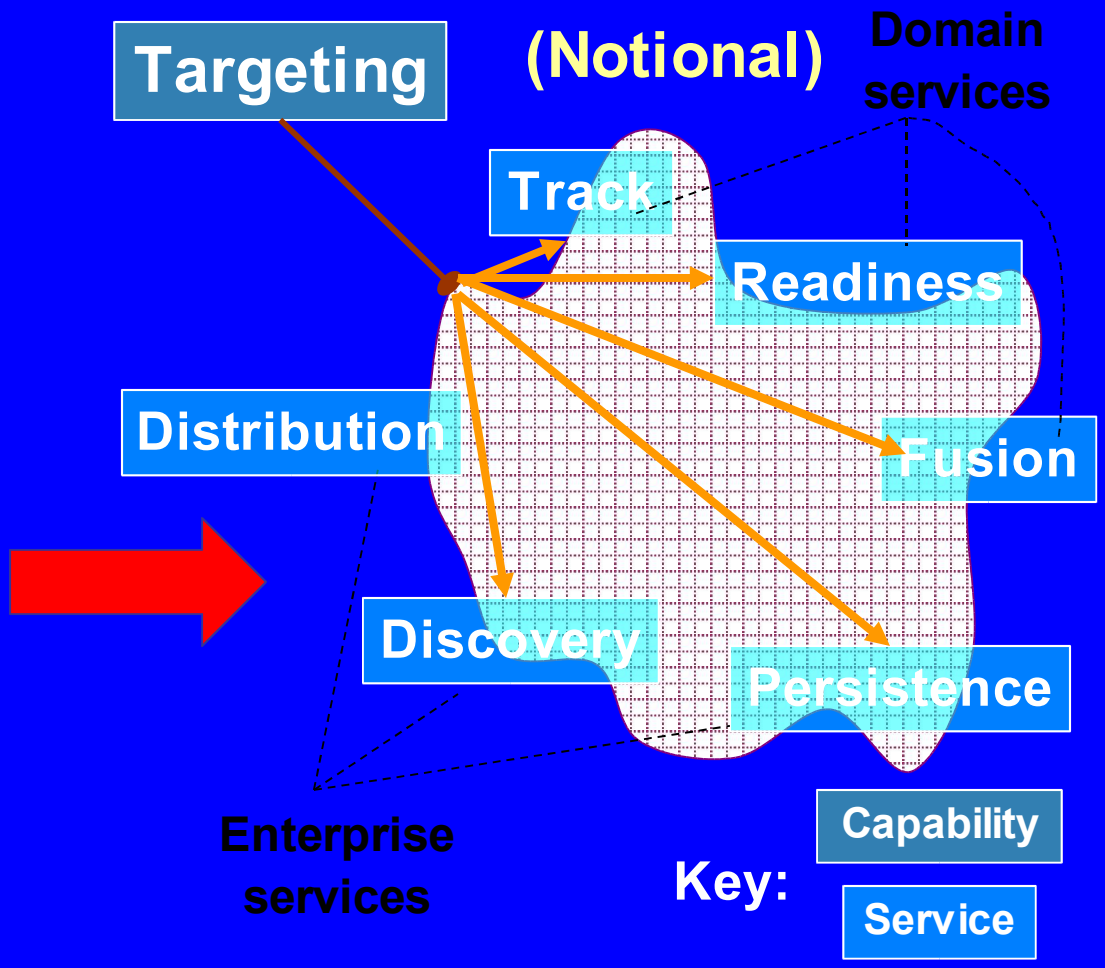
Today: Systems with Targeting Applications

GCCS

ABCS

GCCS-M

TBMCS



Capability discovers and uses common services

"We can't solve problems by using the same thinking we used when we created them"

Albert Einstein

The Results

Apps & Infrastructure with Redundancy (Target Bundle)

ASSESS

- ADMS
- ADOCS
- AEHF
- ATARS
- BLII
- C2P
- CEC
- CHBDL
- CLIP/ADNS
- CTN
- DSCS
- DWTS
- EHF MDR
- GBDL
- GBS
- GCCS-M
- GHAWK
- GPS
- GPS Modernization
- INMARSAT B
- IRIDIUM
- ISNS
- JTIDS
- JTT
- JTT CIB-M
- Link 11 Tadil B
- Link 16
- Link 22
- MIDS
- NFCS
- NMCI
- NOC
- NTDS
- Predator
- PSC-5
- SBMCS
- SCAMP
- SHARP
- SHF SATCOM
- SIDS
- SINCGARS
- S-TADIL J/A
- TARPS
- TBMCS
- TSS
- WSC-6 (V) 5
- WSC-8

ENGAGE

- AADC
- ACDS
- ADMS
- ADOCS
- AEGIS-CDS
- AEHF
- APS & APS/RDS
- AWACS
- BLII
- C2P
- CEC
- CHBDL
- CLIP/ADNS
- CTN
- DACT/C2PC
- DIWS-N
- DSCS
- DWTS
- E-2C
- EHF MDR
- GBDL
- GBS
- GCCS-M
- GPS
- GPS Modernization
- HaveQuick
- IDASC
- INMARSAT B
- IRIDIUM
- ISNS
- JTIDS
- JWCS
- LAWS
- Link 11 Tadil B
- Link 16
- Link 22
- Link 4A
- Link 4C
- MIDS
- NFCS
- NMCI
- NOC
- NTDS
- PSC-5
- REDS
- S-3B
- SBMCS
- SCAMP
- SHF SATCOM
- SINCGARS
- S-TADIL J/A
- TBMCS
- TSS
- TWCS
- WSC-6 (V) 5
- WSC-8

FIND

- ADMS
- ADS
- AEGIS-CDS
- AEHF
- ATARS
- AWACS
- BGPHES
- BLII
- C2P
- CEC
- CGS
- CHBDL
- CLIP/ADNS
- CRYPTO DS
- CTN
- CTT3/JTT
- DSCS
- DSP
- DWTS
- EHF MDR
- EPLRS
- FDS
- GBDL
- GBS
- GHAWK
- GPS
- GPS Modernization
- HaveQuick
- INMARSAT B
- IRIDIUM
- ISNS
- IUSS
- JTIDS
- Link 11 Tadil B
- Link 16
- Link 22
- Link 4A
- Link 4C
- MIDS
- NFCS
- NMCI
- NOC
- NTDS
- PLRS
- Predator
- PSC-5
- SBMCS
- SCAMP
- SHARP
- SHF SATCOM
- SINCGARS
- SONAR
- SSEE Inc E/COBLU
- SSIP
- S-TADIL J/A
- SURTASS
- TBMCS
- TSS
- TUAV
- WSC-6 (V) 5
- WSC-8

FIX

- ADMS
- AEHF
- BLII
- C2P
- CEC
- CHBDL
- CLIP/ADNS
- CTN
- CV4027/CSDTS
- DAMS
- DSCS
- DWTS
- EHF MDR
- EPLRS
- GBDL
- GBS
- GCCS-M
- GPS
- GPS Modernization
- HaveQuick
- IMMACCS (MCSIT)
- INMARSAT B
- IRIDIUM
- ISNS
- JTIDS
- JTT CIB-M
- JTW
- LAWS
- Link 11 Tadil B
- Link 16
- Link 22
- Link 4A
- Link 4C
- MIDS
- NMCI
- NOC
- NTDS
- PLRS
- PSC-5
- REDS
- SARTIS
- SBMCS
- SCAMP
- SHF SATCOM
- SINCGARS
- S-TADIL J/A
- TARPS
- TBMCS
- TESS
- TSS
- WSC-6 (V) 5
- WSC-8

PLAN

- AADC
- AADS
- ACDS
- ADMS
- ADOCS
- AEGIS C&D
- AEHF
- APS
- APS & APS/
- BLII
- C2P
- CAFWSP
- CEC
- CHBDL
- CID (ACTD)
- CLIP/ADNS
- COMBAT ID
- CTAPS
- CTN
- CV4027/CS
- CV-TSC
- DACT/C2PC
- DAMS
- DMIF
- DSCS
- DWTS
- EHF MDR
- EPLRS
- ESRP
- GBDL
- GBS
- GCCS-M
- GHAWK
- GPS
- GPS Moder
- HaveQuick
- INMARSAT
- IRIDIUM
- ISNS
- JFN
- JMPS
- JSIPS-N
- JTIDS
- JTRS w/ADNS
- JTT
- JTT CIB-M
- JTW
- Link 11 Tadil B
- Link 16
- Link 22
- Link 4A
- Link 4C
- MEDAL
- METMF(R)
- MIDS
- NEP
- NFCS
- NFN
- NITES
- NMCI
- NOC
- NSS
- NTCSS
- NTDS
- OED
- PLRS
- Predator
- PSC-5
- PTW
- SBMCS
- SCAMP
- SHF SATCOM
- SINCGARS
- SMOOS
- S-TADIL J/A
- TAMPS
- TARPS
- TAWS
- TBMCS
- TEDS
- TES-N
- TESS
- TSS
- TTWCS
- UOC
- WSC-6 (V) 5
- WSC-8

TARGET

- AADC
- ACDS
- ADMS
- ADOCS
- AEGIS-CDS
- AEHF
- AFATDS
- APS
- APS & APS/
- AWACS
- BLII
- C2P
- CEC
- CHBDL
- CLIP/ADNS
- COMBAT ID (MKXII IF
- CTAPS
- CTN
- DACT/C2PC
- DAMS
- DIWS-N
- DSCS
- DWTS
- E-2C
- EHF MDR
- EPLRS
- GBDL
- GBS
- GPS
- GPS Modernization
- HaveQuick
- IDASC
- INMARSAT B
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- JMPS
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- JTW
- JWCS
- Link 11 Tadil B
- Link 16
- Link 22
- Link 4A
- Link 4C
- MIDS
- NFCS
- NITES
- NMCI
- NOC
- NTCSS
- NTDS
- PLRS
- PSC-5
- PTW
- REDS
- SCAMP
- SHF SATCOM
- SINCGARS
- S-TADIL J/A
- TAMPS
- TBMCS
- TSS
- TTWCS
- WSC-6 (V) 5
- WSC-8

TRACK

- AADC
- ADMS
- AEHF
- APS
- BLII
- C2P
- CEC
- CHBDL
- CLIP/ADNS
- CTAPS
- CTN
- DACT/C2PC
- DAMS
- DIWS-N
- DSCS
- DWTS
- EHF MDR
- EPLRS
- GBDL
- GBS
- GPS
- GPS Modernization
- HaveQuick
- IDASC
- INMARSAT B
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- JMPS
- JSIPS-N
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- Link 11 Tadil B
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- MIDS
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- NMCI
- NOC
- NTCSS
- NTDS
- PLRS
- PSC-5
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- SBMCS
- SCAMP
- SHF SATCOM
- SINCGARS
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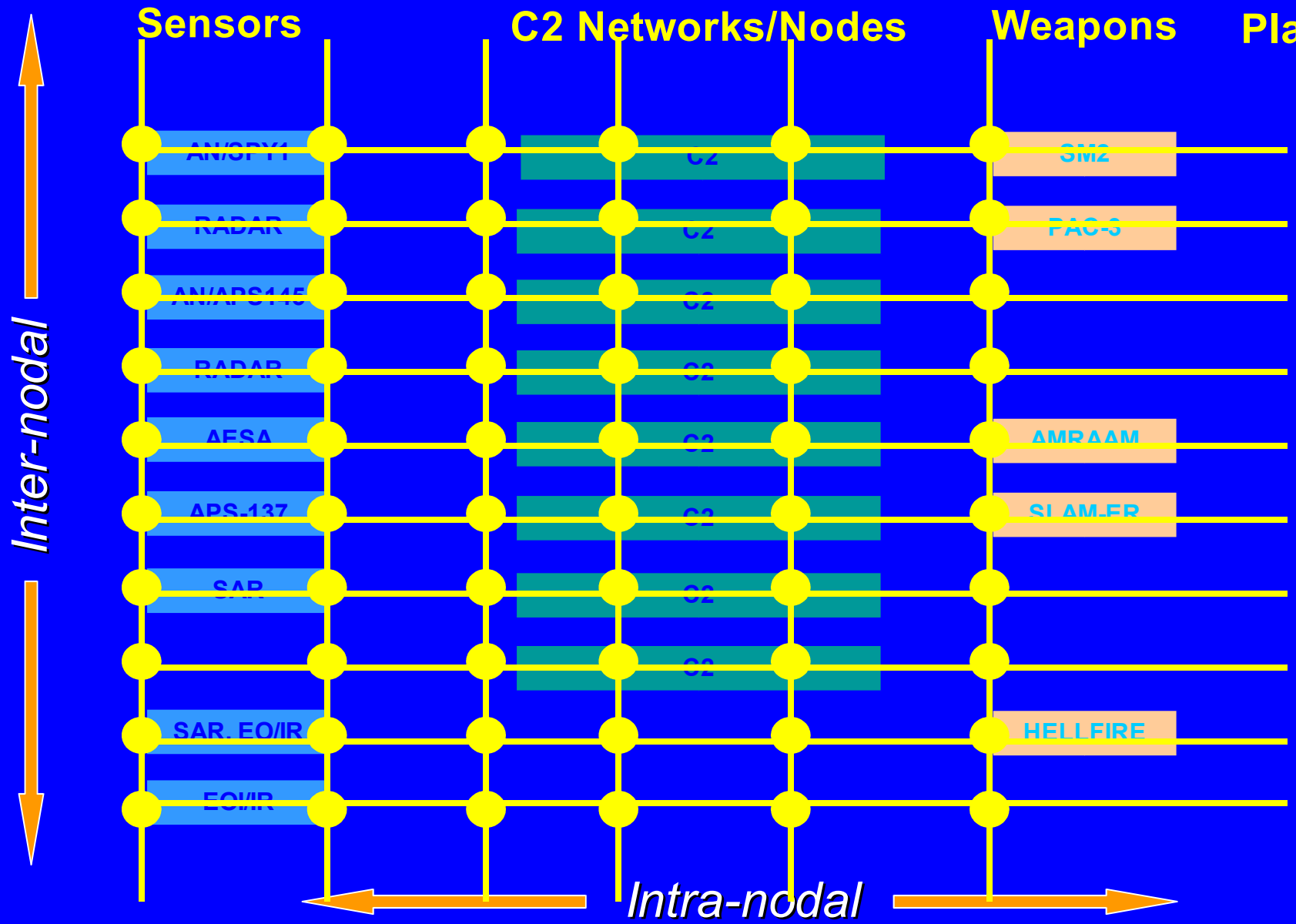
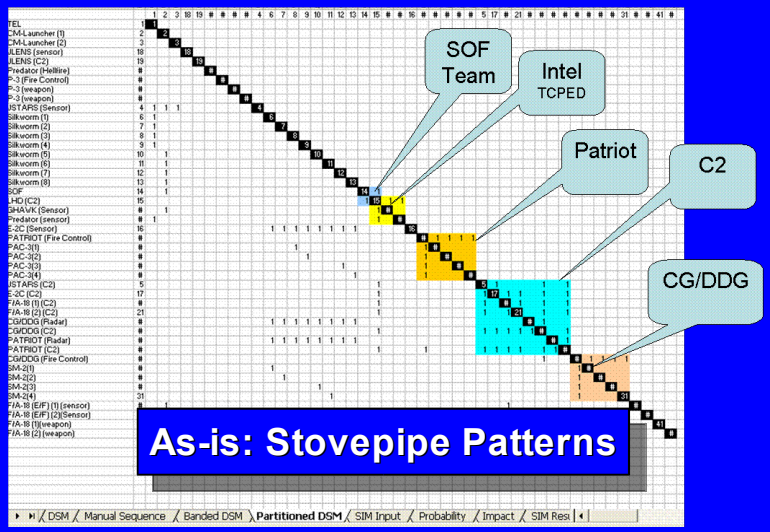
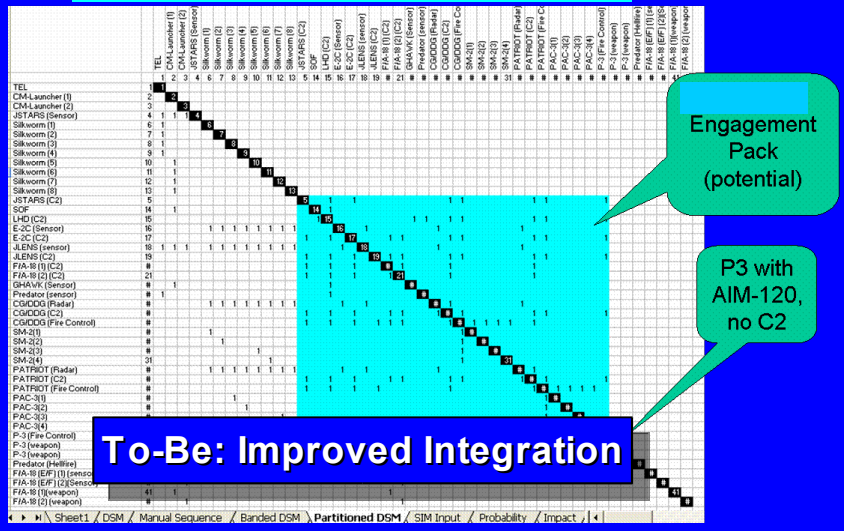
- WSC-8

Distributed Services Capabilities



Integration Pattern Emergence





Illustrative Results

- 40% more TAMD kills
- 50% reduction in number of leakers
- 100% increase in engagement envelope
- Up to ten-fold increase in overland percent area protected

Most significant benefits realized when ALL combat reach capabilities implemented

Challenges: A PARTIAL List

- Technical
  - How Does One Document the Architecture of the Internet?
- What does System Architecture Mean in a Net-centric Environment?
  - Identity Management & Access Controls
  - Evolving Standards & "Hard" Integration Points
    - Heterogeneity and Interoperability Implications
  - Coalition and HLS Information Sharing
    - "Need to Share" Vice "Need to Know"
  - Risk Management
    - Operational Testing, Certification, Accreditation (of what and how?)
- Cultural
  - Market-Driven Model Vice Policy Mandates
  - Leverage Community Intellectual Property
  - Common Approaches and Methods
  - Common Vocabulary

What YOU Can Do!

- Flexibility and Balanced Evolution with Industrial Technology Base Critical

- Accreditation Process Overhaul/Streamlining

➢ *Recognize this is NOT an Engineering Exercise*

Partner with us…..

Technology and standards ARE MISSION CRITICAL