Harnessing Big Data and Semantic Technologies for Tactical Warfighting Decision Support

Office of Naval Research

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Wayne Perras

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Cloud Computing Context

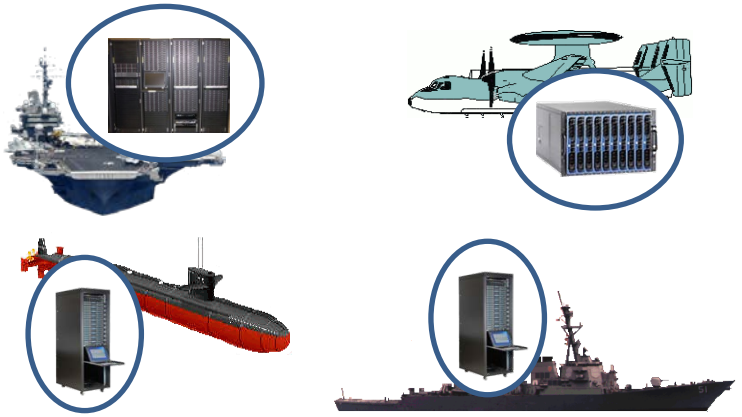
IT Efficiency Clouds

Purpose: Consolidate enterprise computing for cost savings

- Located at Large Data Centers
- Supports 10,000s of customers
- Operates on high bandwidth networks

IT Efficiency Clouds are mature and can make the Navy IT infrastructure more cost effective

Naval Tactical Cloud (NTC)



Purpose: Improve warfighting effectiveness while operating inside adversary kill chains

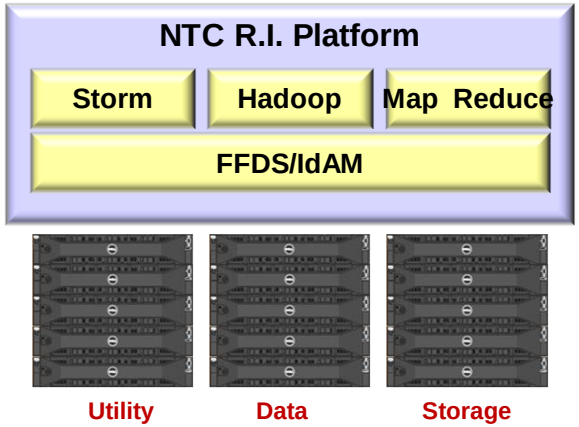
- Cloud located at the tactical edge supporting real-time mission planning and execution
- Applications automate diverse sensor and data assimilation
- Operates on tactical RF networks

Tactical Clouds are emerging and have the potential to radically improve Navy combat effectiveness

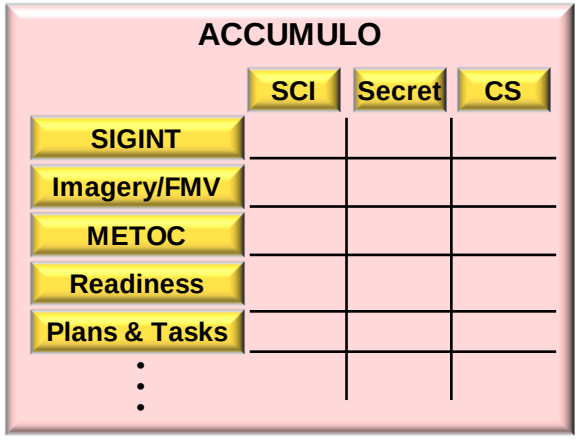
ONR Enabling Technologies for NTC

NTC RI Platform

Massive Storage & Compute Platform Core & Common Services



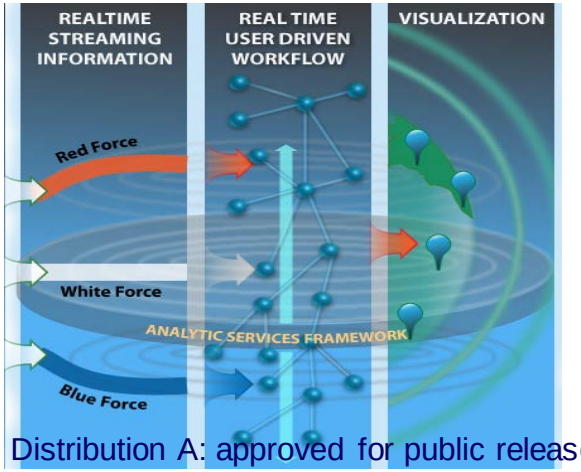
All Source, Big Data UCD Framework



SAVA

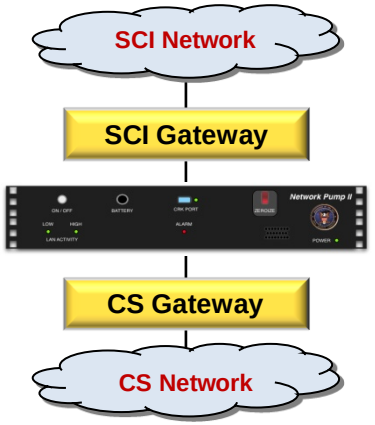
Highly Tailorable, Quickly Developed Apps & Widgets

High Performance Data Analytics/Predictive Analysis



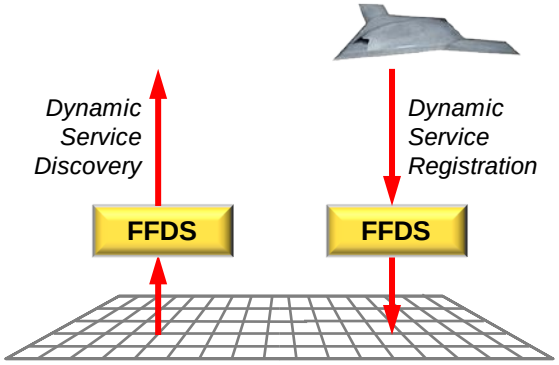
UGW/PUMP II

High Performance, Cross-Domain Gateways



FFDS

Dynamic Federation & Discovery Services for D-DIL



Naval Tactical Networks

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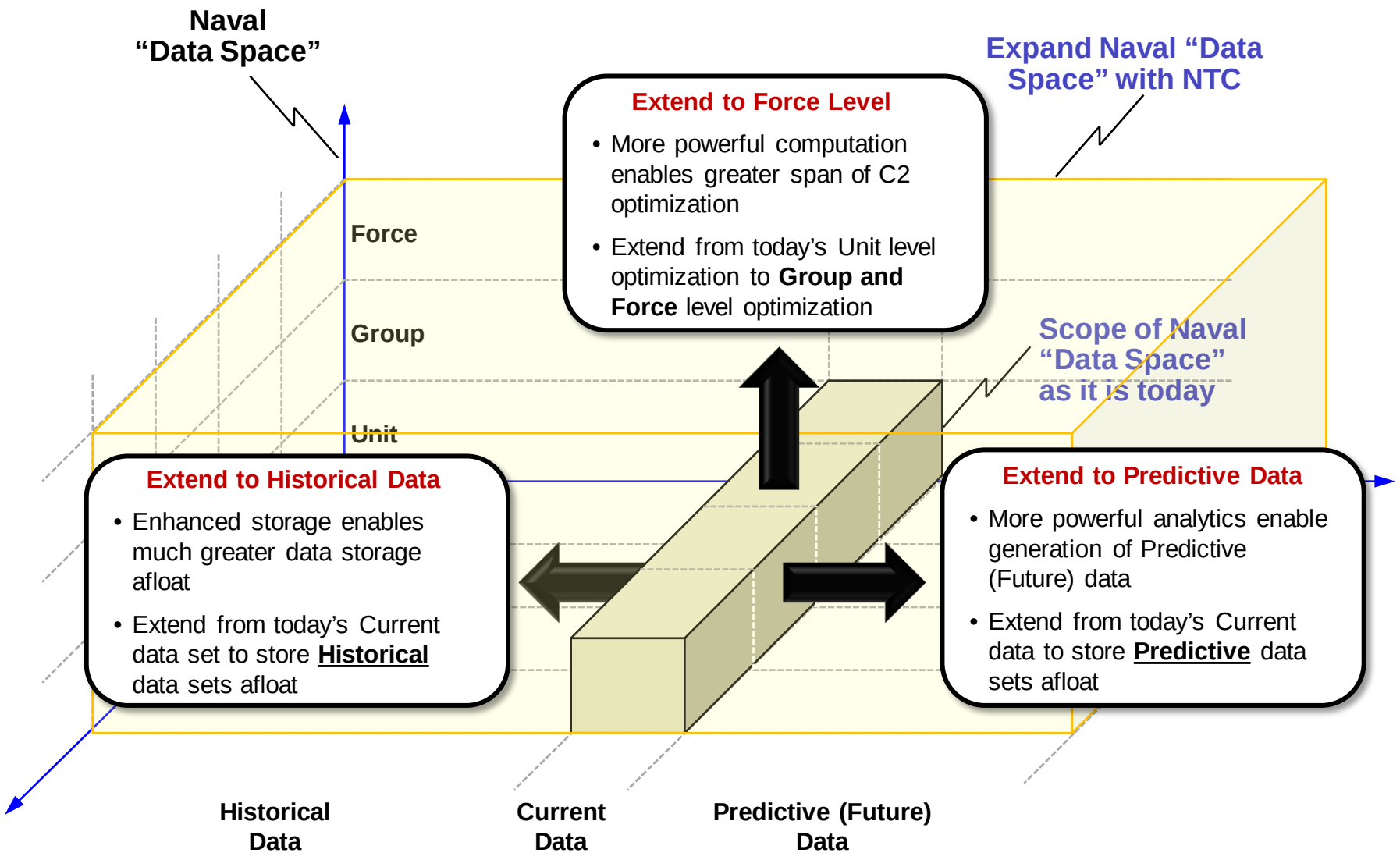
Harnessing the Complete Naval "Data Space"



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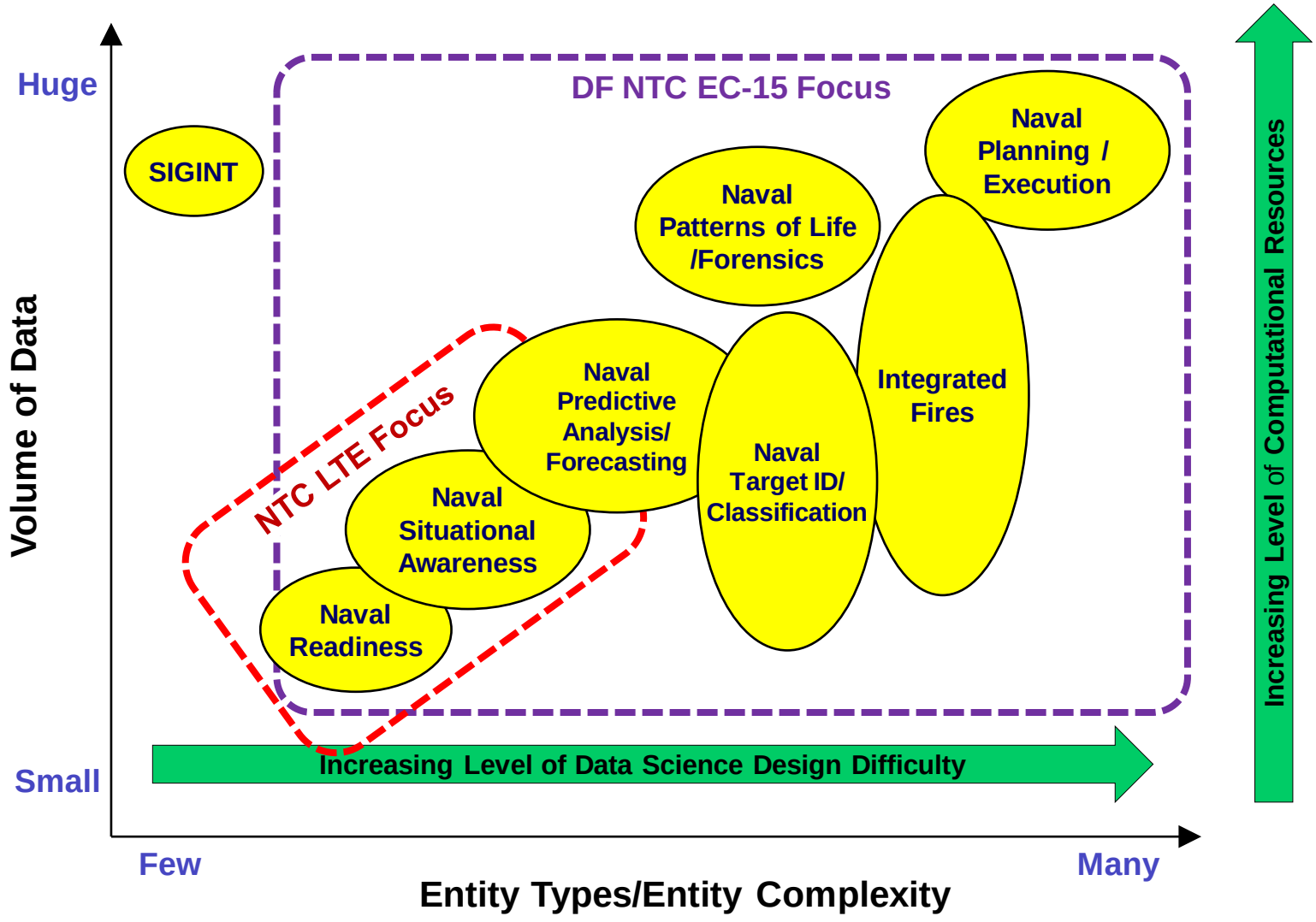
Naval Big & Semantic Data Challenge



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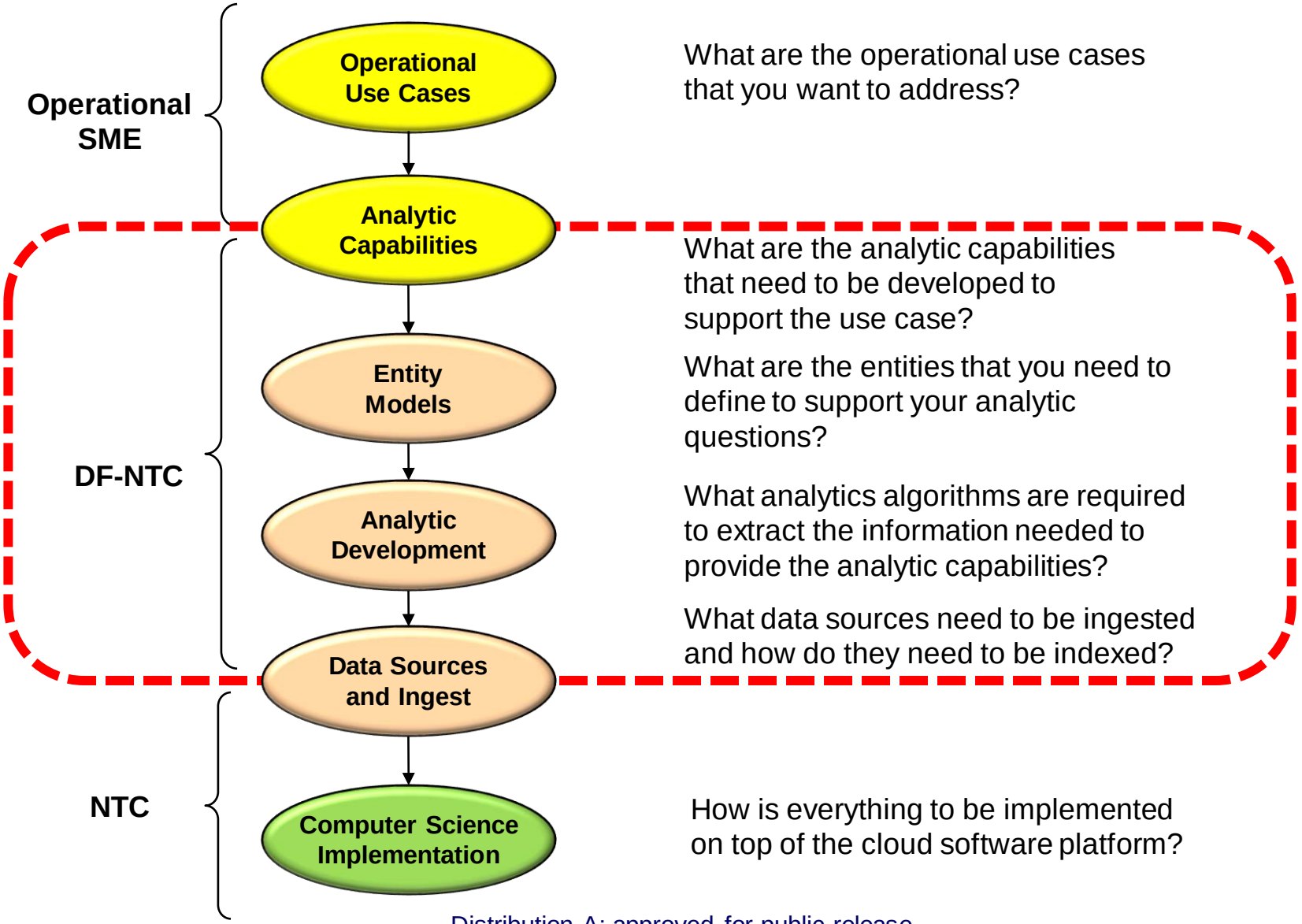
Data Science Methodology



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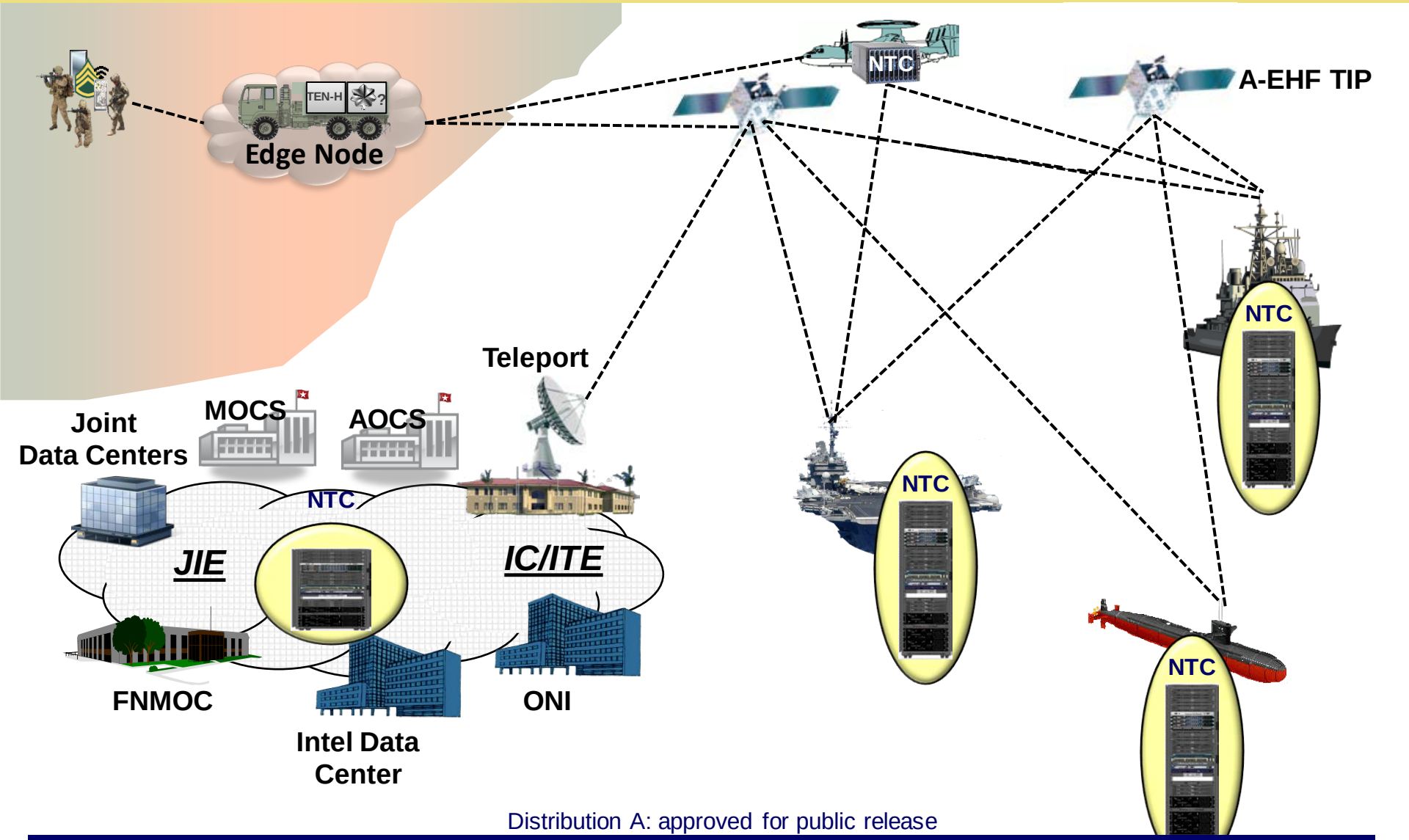
NTC Enabling Tactical Joint Warfighting Data Interoperability



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Seamless Warefighting Data Interoperability Ashore/Afloat