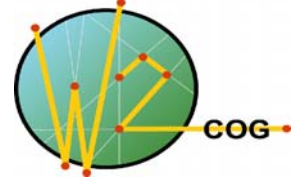


A Recommendation for Implementing IPv6
Through Adopt-Buy-Create (ABC)* Procurement,
Federated “Open Technology Development”
(OTD)*, and “Certified Net-Ready*” Assessment

Via



“Mission Thread Market”



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*US DoD buzz words that are still in
the PowerPoint engineering phase

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What is the US Government “Requirement” for IPv6?

For that matter....what is the US Government
“requirement” for IPv4?

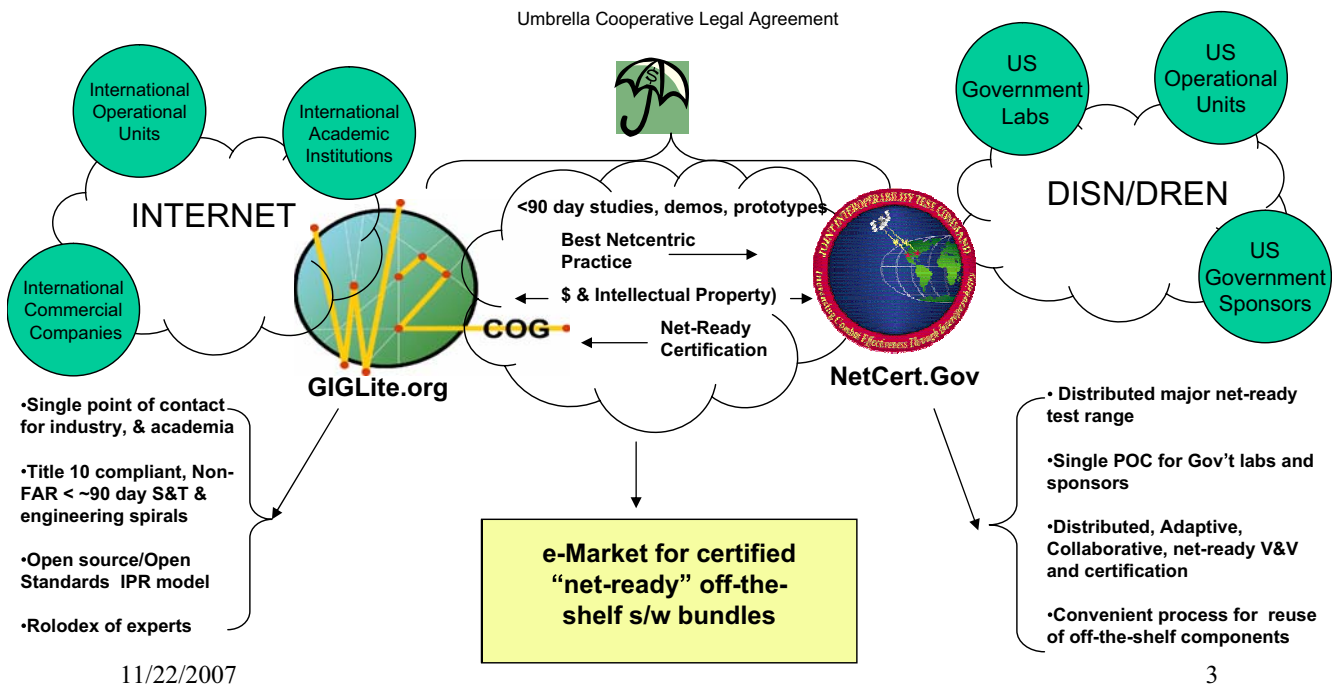
The answer is “none” for the latter and a “policy
mandate” for the former....

On the other hand, the US Government has well
known, unfulfilled, requirements for security,
mobility, interoperability, etc....

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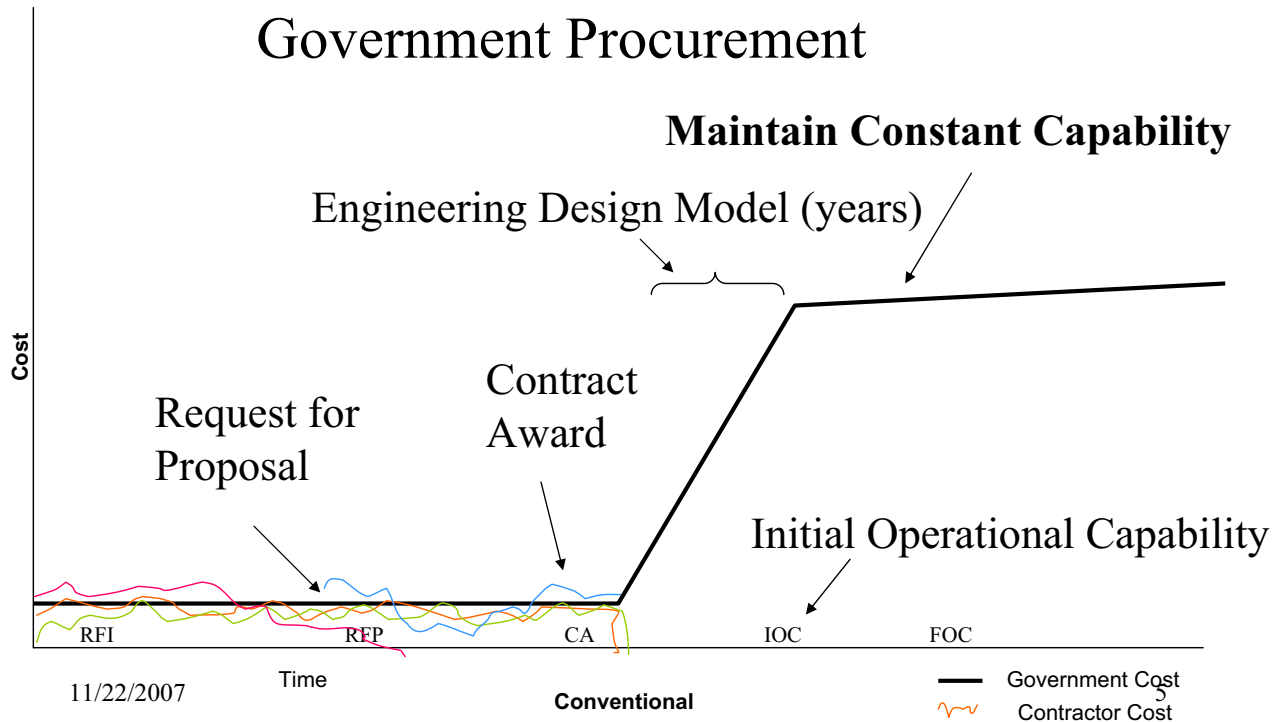
The Right Answer: Government Use Cases and Investment Influence COTS market



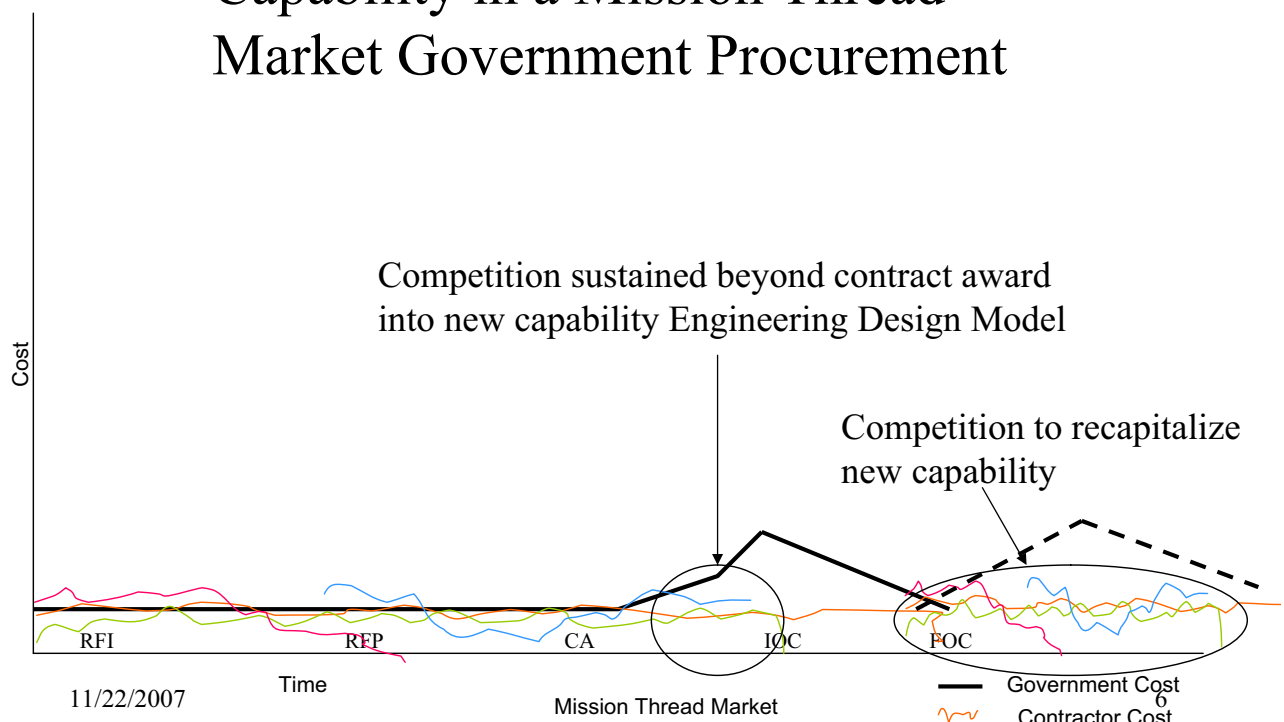
Observations

- Commercial-off-the-shelf (COTS) software in government systems is generally out of date at implementation and falls farther behind throughout life cycle.
 - Government requirements process does not intercept new COTS s/w vectors or sunset archaic s/w requirements.
 - Government rapid technology insertion methods use COTS as gap fillers that generally lack sustainment tails.
 - IRT the above, enlightened *e-Gov policy mandates IPv6, COTS, SOA, OSS, and “best” industrial practice*
- *e-Biz unwritten “policy” is to leverage competition in the marketplace...*

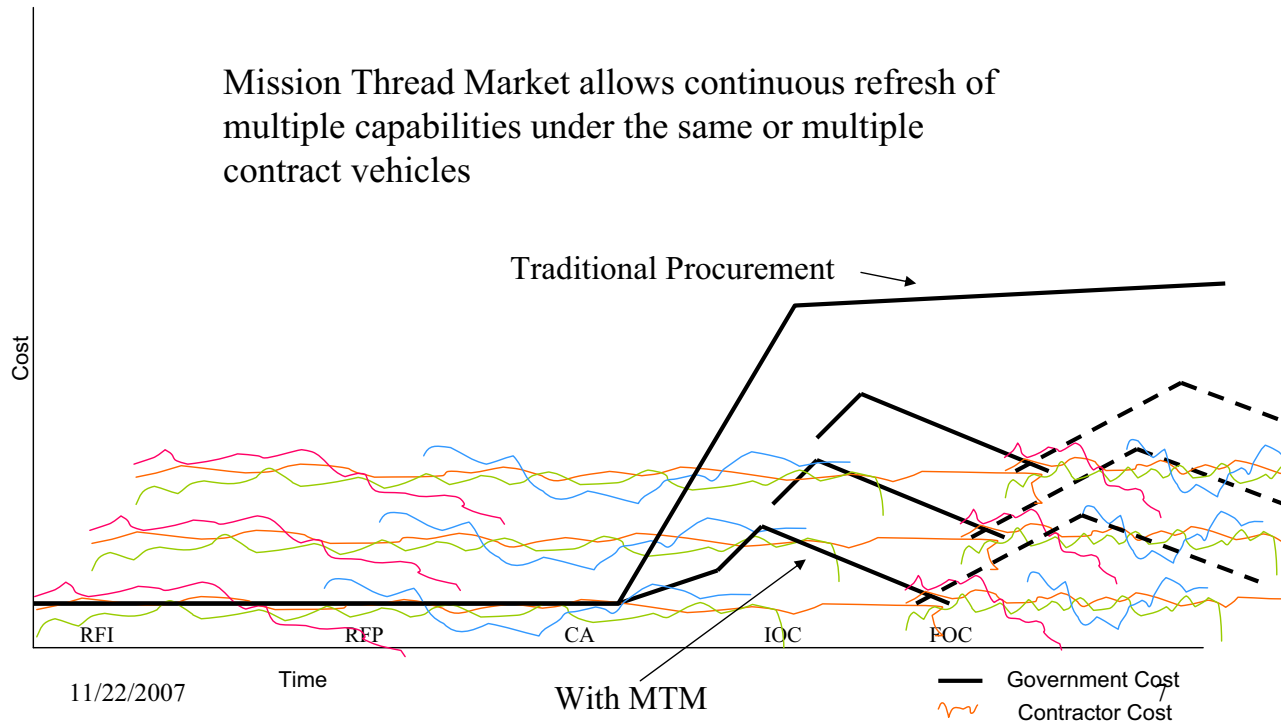
Cost vs. Time for Constant Capability for Typical Government Procurement



Cost vs. Time for Constant Capability in a Mission Thread Market Government Procurement



Cost vs. Time for Multiple Capabilities via Mission Thread Market

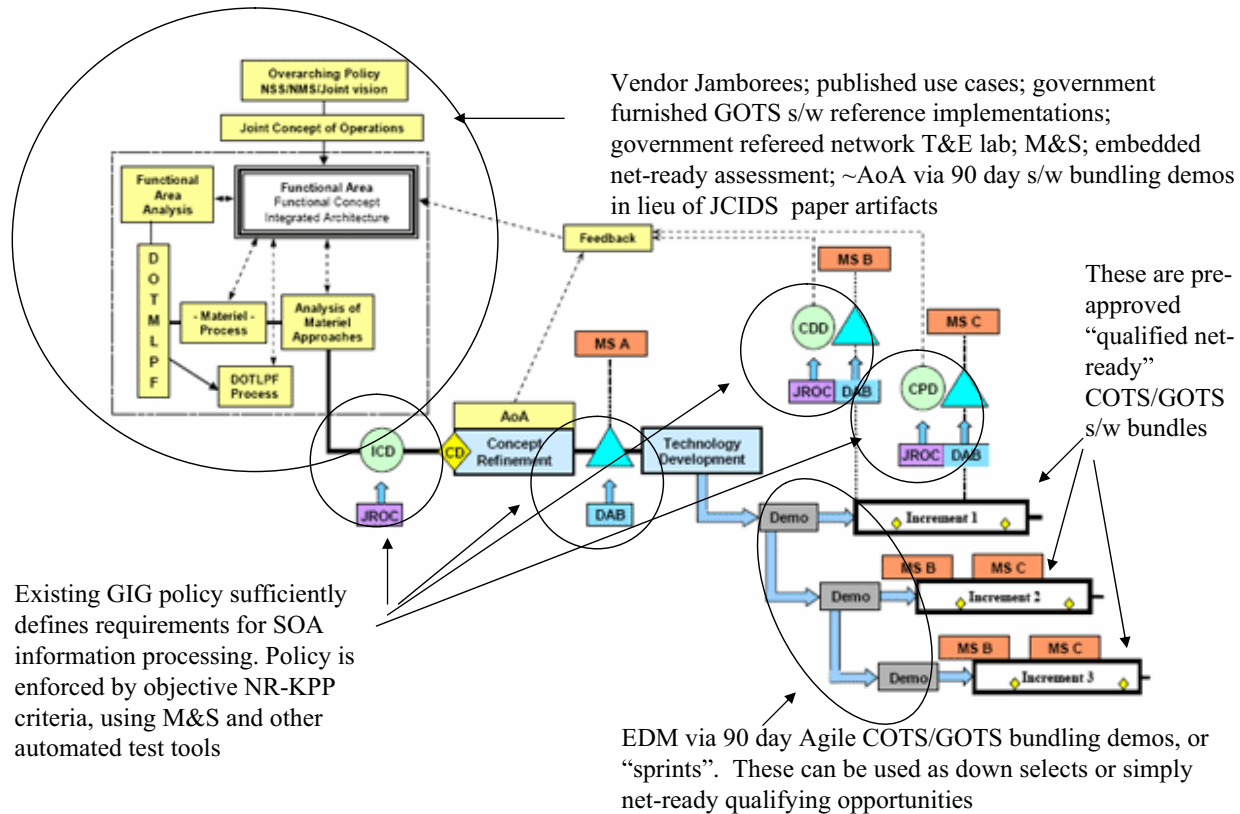


Recommendation

- Employ a “Capability Broker*” (e.g. W2COG) to manage a COTS s/w marketplace around government use cases
- Open Source “Government Furnished Equipment” (GFE) (esp. high assurance network services)
- Leverage investment in “GIGlite” project
- Analyze e-Gov vs. e-Biz “bake off” to determine concept validity

*Another US DoD buzz word ...it essentially means “Personal Shopper” for COTS software...

MTM Inside DoD Inst 5000.2

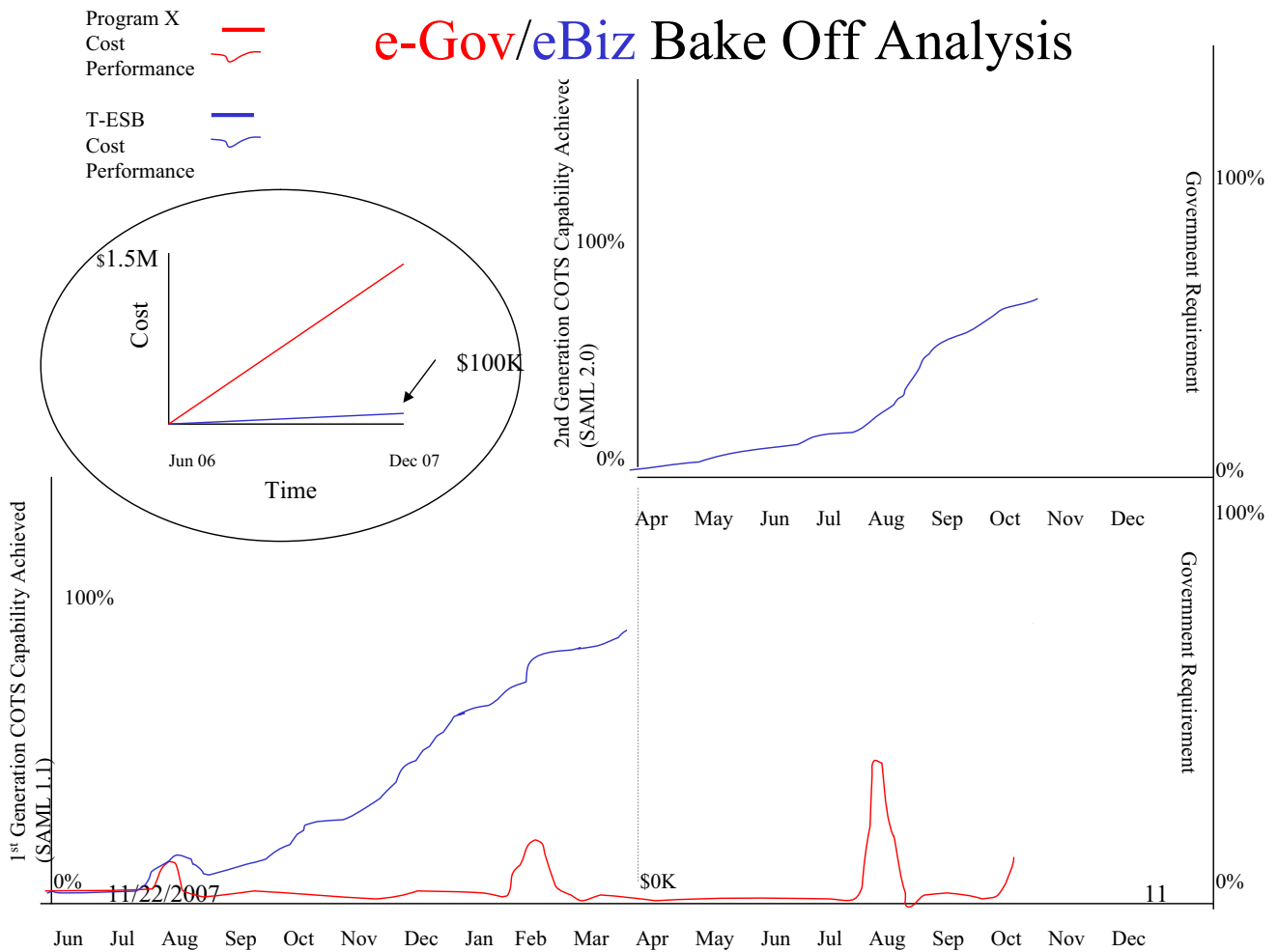


← 11/22/2007 **GFE COTS/GOTS software build every ~ 360 days** →
Program IOC ~ 10 years

e-Gov/e-Biz “Bake Off”

- **Players:**
 - “Program X” Limited Technology Experiment
 - Gov PM
 - Contract vendor team
 - Objective is analysis of alternatives
 - Trusted-ESB Agile Product Development Team
 - JITC Capability Broker (W2COG)
 - Self selected vendor + government ecosystem
 - Objective is viable product to market
- **Deliverable: Secure C2 SOA via COTS + GOTS**
- **Ground rules:**
 - Identical GFE (high assurance GOTS s/w)
 - 3 X 6 month development cycles (6/06-12/07)
 - Comply with GIG policy (NR-KPP, C&A, etc)
 - MOE:
 - % Requirement satisfied
 - COTs currency
 - Cost
 - Speed to capability

e-Gov/eBiz Bake Off Analysis



Bake Off Results

- Program X LTE series
 - Capability demo planned Mar 08
 - COTS (e.g. SAML 1.1) >18 months out of date
 - Government cost about \$1.5M
 - Operational availability TBD > 18 months

- T-ESB Agile Development
 - COTS architecture satisfies ~80% of government use case requirements
 - COTS (e.g. SAML2.0, Google Earth) current
 - Government cost about \$100K
 - Certified (SABI) COTS available July 08

Findings re: Competition

Vendor Capability Competition:

- ✓ Vendors are willing to invest to achieve competitive advantage re: advertised government COTS procurement
- ✓ Sustaining vendor competition will drive costs down
- ✓ Growing the MTM mitigates risk that COTS will not satisfy government use cases

Government “Administrative Competition”

- ? Resources required to continuously develop policy leave none to drive to desired policy outcomes.
- ? Mechanism to enforce government acquisition policy in COTS s/w market does not exist.
- ? Programs compete for resources but do not have processes to pool resources against similar requirements
- ✓ MTM enables policy owners to manage capability improvements “on the ground” vice via PDF and PowerPoint
- ✓ MTM enables “federated governance” = “collaborative development” across mutual IT infrastructure requirements

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Bake Off Lessons Learned:

If government:

- Publishes its information processing use cases and procurement schedule openly in lieu of traditional RFI+ RFP and...
- Defines “net-ready” assessment criteria objectively and...
- Provides government developed s/w reference implementations as GFE and..
- Provides open access to a government brokered network laboratory...
- Manages agile open quarterly demonstration cycles and...
- Provides access to government approved adaptive V&V and C&A services and...
- Pre-approves successfully demonstrated COTS bundles and ...
- Maps all the above to FAR and DODI 5000 artifacts

Then government can:

- Improve currency of its embedded COTS
- Satisfy larger percentages of government requirements with COTS
- Intercept new COTS s/w vectors and sunset archaic COTS
- Identify COTS capability gaps to address with government S&T/RDT&E
- **Field information processing capability faster better and cheaper**

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Bake Off Deliverables

Requirements

	Program X	T-ESB Team
Demonstrated value re: operational use case	TBD	1. Enables EUCOM ISR tipper for counter drug coalition interdiction. 2. Enables multi-version coalition C2 (METOC) COP
High assurance security service (PL5)	TBD	SABI PL4
Multi-Level Security	Multi-level viewing of GENSER + SCI data at rest + Guard	Multi-level viewing of GENSER + SCI data at rest + Guard
Viable Technology Refresh	Superseded version of COTS s/w e.g. SAML 1.1	Current version of COTS s/w e.g. SAML 2.0
Affordable	TBD	Software commodity pricing
Deployable off the shelf and Interoperable	TBD	Open Standard ESB (JBI) + COTS/GOTS

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Can IPv6 Improve the T-ESB Stack?



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Analysis

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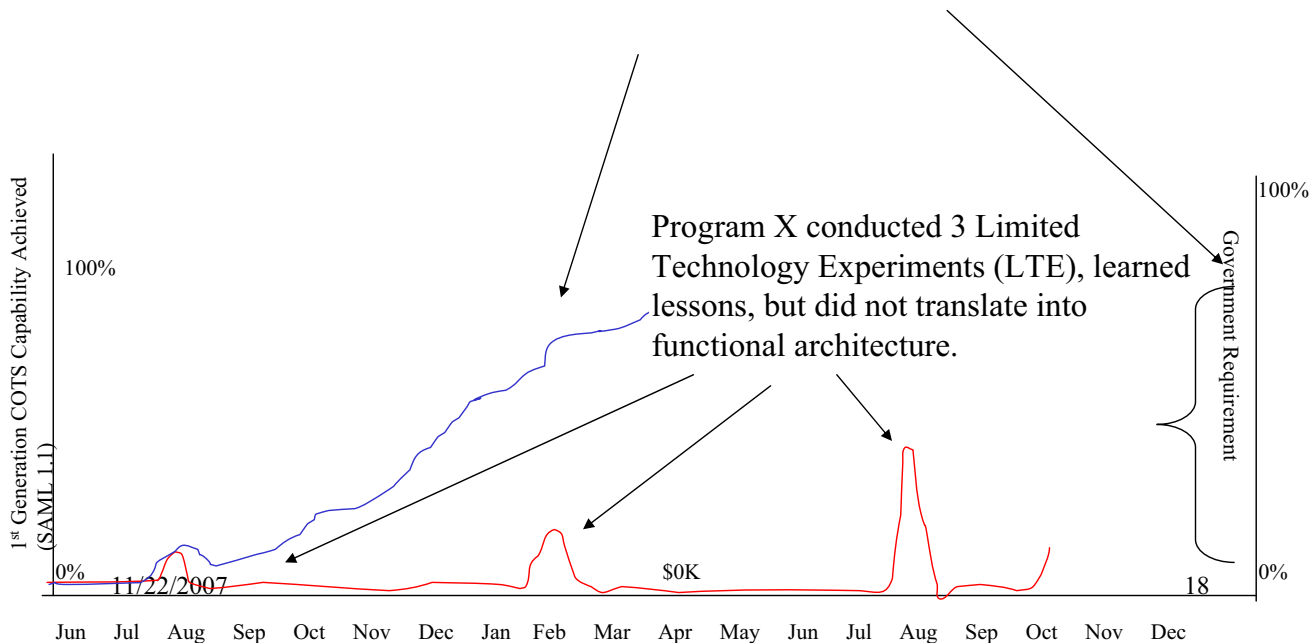
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e-Gov/eBiz Bake Off Analysis

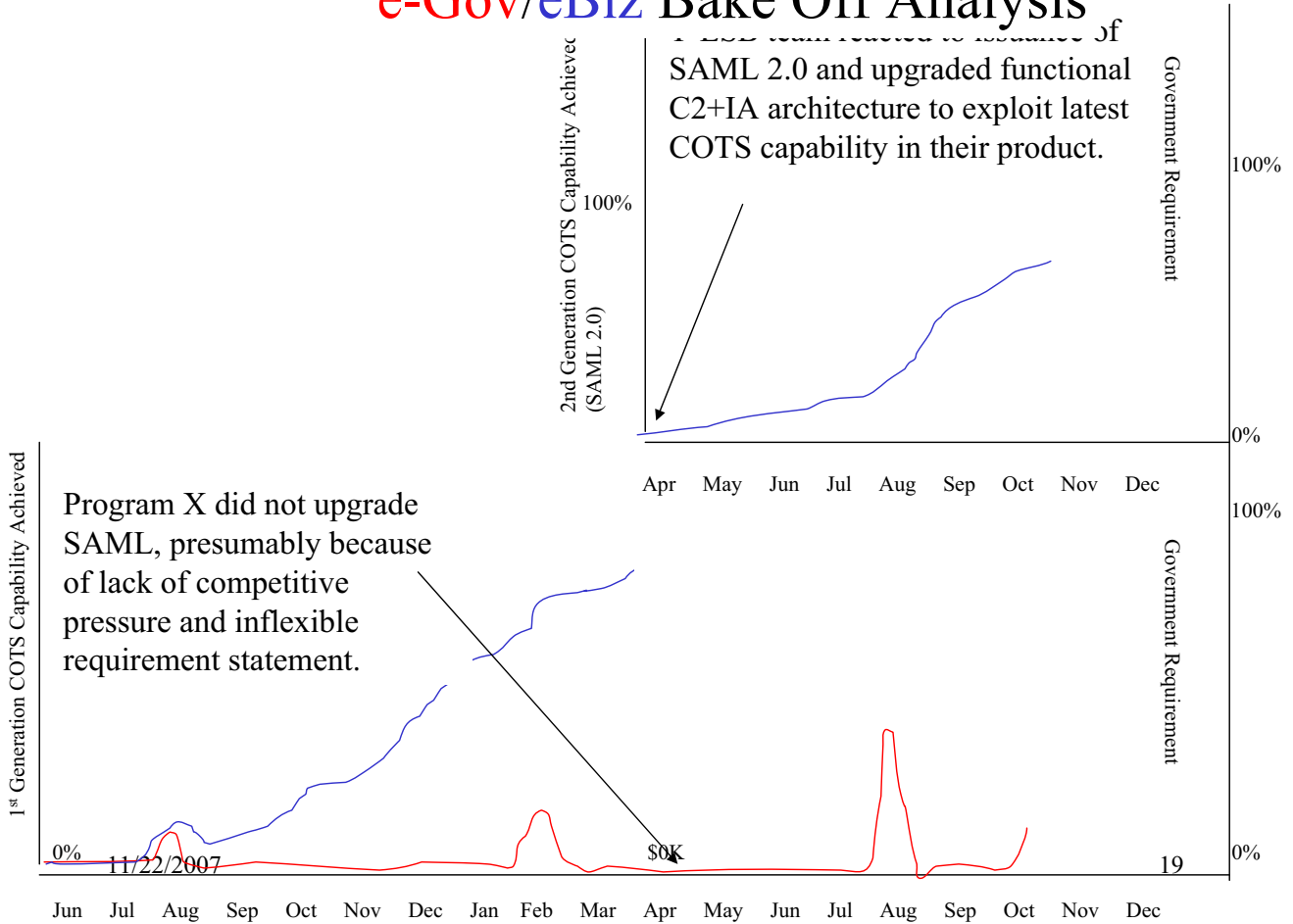
Program X
 Cost ———
 Performance ~~~~~

T-ESB
 Cost ———
 Performance ~~~~~

T-ESB team developed functional IA+C2 SOA that satisfies a significant % of government requirement.



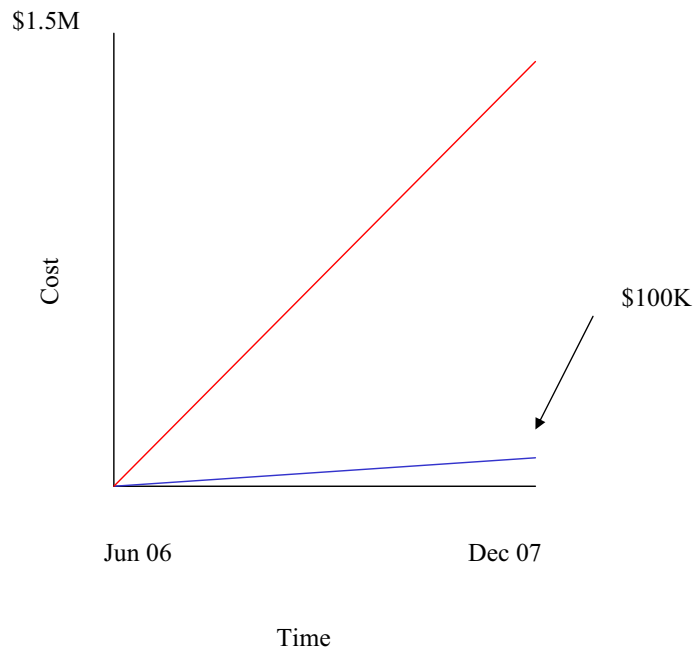
e-Gov/eBiz Bake Off Analysis



e-Gov/eBiz Bake Off Analysis

Program X Government cost was \$1.5M

T-ESB Government cost was ~\$100K. Most T-ESB development cost was borne by vendors preparing to compete for Government COTS procurement



Analysis: Program X

- Understanding of capability peaked during three demonstrations, but quickly tapered off without competitive pressure to deliver a viable product to market.
- Typically, government would have baseline use cases and reference architecture to show for its investment in the LTE series. TBD if that will be the case in this particular instance.

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Analysis: T-ESB

- Initial focus on exploiting the COTS without binding to government use case
- No government investment, so use case development slow
- Responded instinctively to adopt next generation COTS software (SAML 2.0) because of market pressure

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How to Run a Mission Thread Market

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Acquisition Strategy

- Qualified COTS
 - NR-KPP ready/ C&A road-map
 - Technical trajectory
 - COTS legacy
 - Catalogue

These establish the source selection criteria: % of rqmt satisfied; currency; cost; speed to capability
- Full, Open, and *Sustained (even increased)* Competition by creating “Mission Thread Market”

Use competition to develop and deploy capability rather than government funding

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Acquisition Plan = COTS Procurement

- Sponsor(s)/PM provide use cases in lieu of standard RFI/RFP
- Capability broker (W2COG)
 - Works for Sponsor and PM (“personal shopper” metaphor)
 - Creates development and demonstration environment for COTS participants
 - Prepares acquisition documents .
 - Advertises use cases and manages ~90 day demo spirals (Can include CWID, TW, etc as venue.)
- JITC performs embedded adaptive V&V, T&E, and C&A.
- Developers deliver installation ready COTS/GOTS components as GFE for PR/POM XX.
- Source Selection Board
 - Includes Sponsor (s), Operator, *and Independent Capability Broker*
 - Provides federated governance for multi-sponsor acquisition
- Contract
 - Incentives emphasize innovative re-capitalization vice sustaining capability
 - SLAs address both tech refresh and retiring archaic GFE

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Mission Thread Market Acquisition Artifacts

Process	Directive	Capability Broker Deliverable
JCIDS	CJCSI 3170.01, DODI 4630.8	Tailored ISP
FAR/DFAR	DODI 5000. series .	DODINST 5000.2 compliant artifacts, e.g. BAA, RFI, RFP, Source Selection Plan, Risk Mitigation Plan, SOA COTS Acquisition Strategy, Contract SLAs
IA Compliance, e.g. DIACAP	DODI 8500 series	Enterprise “Type Accreditation” (Trusted SOA DIACAP certification plan)
NR-KPP= (NCOW = IA+ SOA+ Data Strategy) + KIPS + DoDAF	CJCSINST 6212.01, NCO/W Ref Model, KIPS, NSA GIG IA policy, DoDAF v1.5	Measurable and Testable Net-Ready Parameters, diagnostic DoDAF views
T&E	DODI 5010.4, 4630.8	Tailored TEMP (latest COTS GFE is tested at DT and goes to OT)

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Acquisition Strategy => Services

- After first year or two, COTS competition will naturally lead to commodity prices for generic hardware and software

Information processing *services* can be addressed separately

- Strategy is to lease information processing services as COTS and re-compete every year or two as part of acquisition

Example: award five year contract, one award for two years with three one year options; but allow other vendors to demonstrate their services in the market place. Contract Integrator manages deployment of best of breed and retiring outdated technology.