



An Architecture to Deliver a Healthcare “Dial-tone”

Using SOA for Healthcare Data Interoperability

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Today's Discussion

- Intel's vision of the "healthcare dial-tone"
- How a Service-Oriented Architecture can deliver that vision
- Implementing the SOA "Network Model" for achieving data interoperability
- Leveraging standards to deliver improvements in flexibility and cost
- Semantic Interoperability and Secondary Usages of data on the network
- Addressing the Performance and Scalability challenge of SOA at scale



**Today's Emphasis is Architecture
Rather than Policy**

Vision for a Healthcare “Dial-Tone”

The video ...



Leveraging Service Oriented Architecture to Achieve the Vision...

• Key attributes of the vision:

- Varied data sources and forms of information delivery, yet consistent information
- Targeted data available at the point of care
- Semantic normalization
- Information available throughout the care workflow



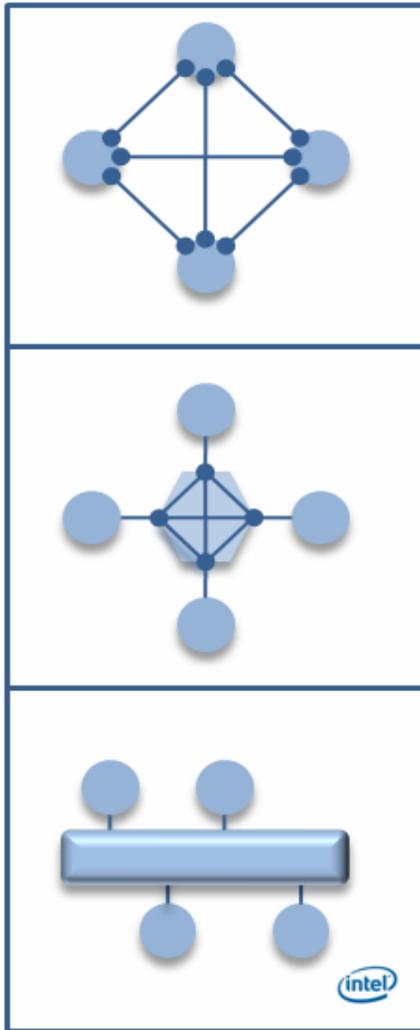
• Key capabilities of a Service Oriented Architecture

- Isolation of implementation concerns
- Reuse across platforms and technology generations
- Common delivery of functions and data
- Flexible separation of rules
- Location independent and re-configurable interactions

SOA is the best practice for complex data integration



Integration Models



Adapter Oriented Integration

- “Every HL7 interface is a new interface”
- Expensive to build and maintain, Point-to-Point integration results in N^2 problem
- Costs rise exponentially as the number of network participants (applications) increase.

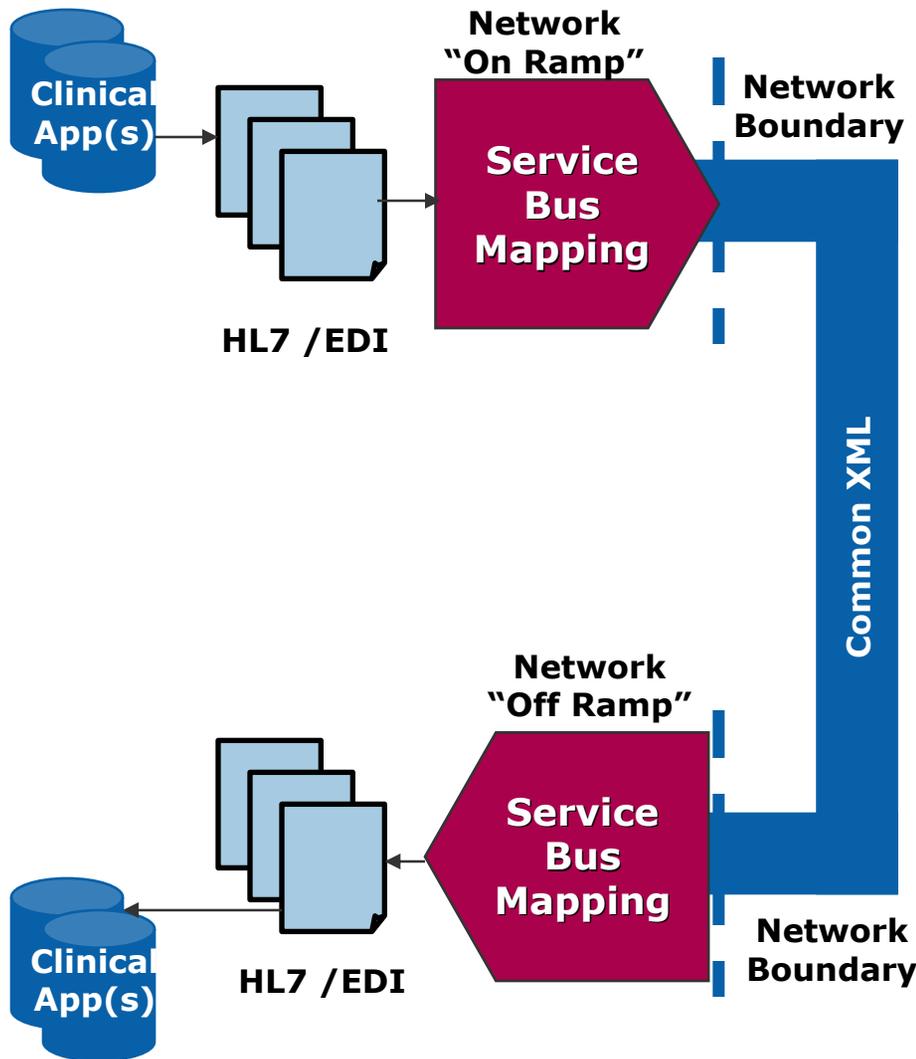
Integration Broker

- Hub and spoke model with centralized adaptors
- Shifts cost to maintenance of the broker
- Brittle, difficult to scale
- Adaptor heterogeneity becomes broker heterogeneity

Network Model (Common Information Model)

- One mapping effort per participant to join the network
- Ubiquitous canonical data form to generate the “dial-tone”
- No existing adaptor, application or network service maintenance as new systems join the network
- Virtualization of endpoints and services in the network yields flexible deployment options and low cost re-configuration over time

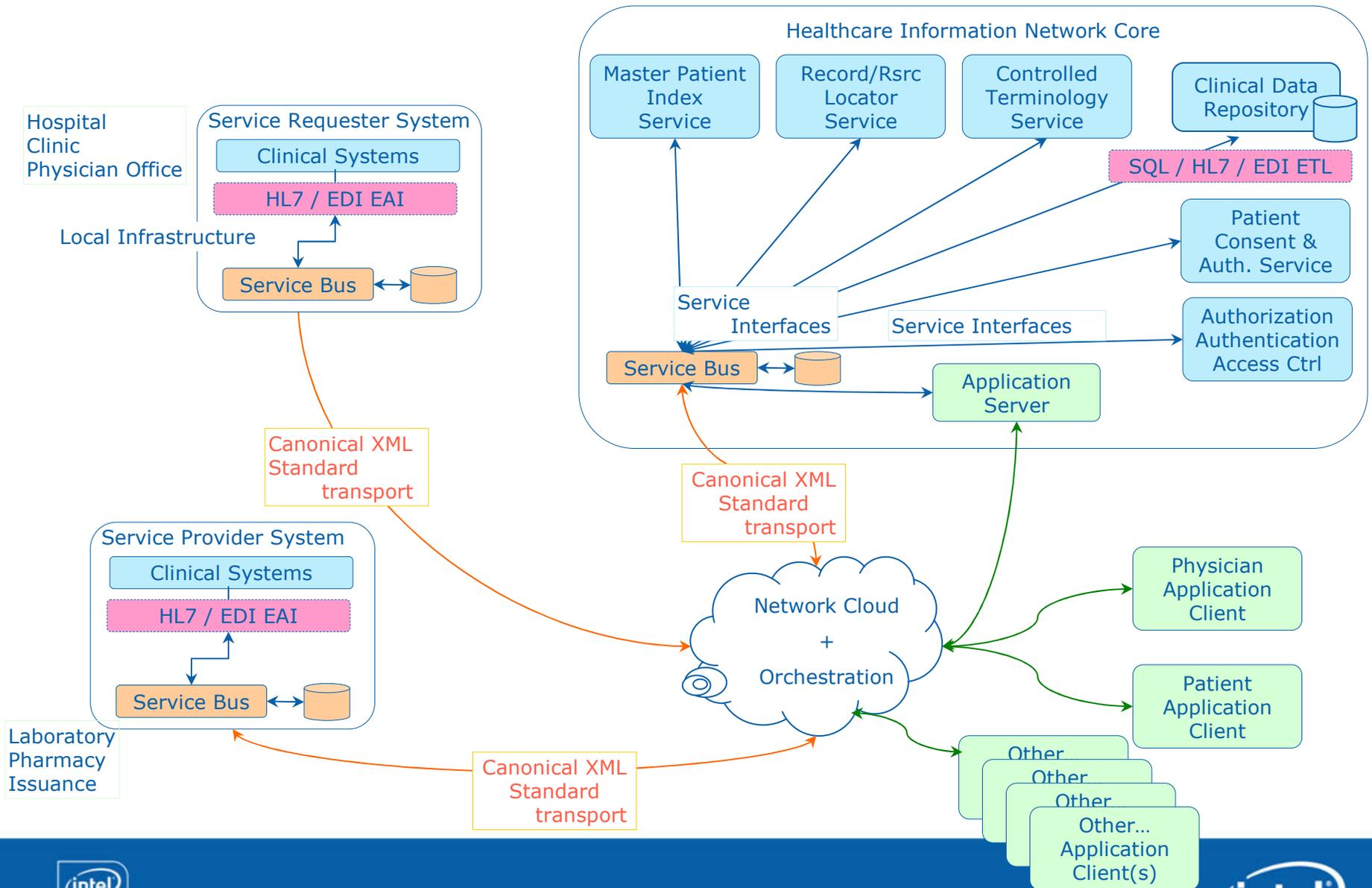
Getting on the SOA Network...



Participation on the Network

- One to one conversion cost between network participant and all network applications and services
- Mapping from internal system to network common/canonical form is the key task
- Mapping done to on-ramp and off-ramp data and messages
- Semantic transformation happens during on the on & off ramp phase of integration
- Shared validation rules, applications and services leverage the common/canonical form to achieve the "dial-tone" effect.

The SOA "Network Model"



Standards, Semantics & Secondary Data Use

- SOA network synchronizes structure and semantics of data
- This synchronization creates the “dial-tone”
- The “dial-tone” makes the secondary use of data in the network practical
 - Analytics ... like tracing an episode of care
 - Shared transactional applications ... like electronic clinical order processing
 - Cross data source validation functions ... like duplicate order discovery
- Standards yield an ecosystem capable of delivering this architecture
 - Intel is actively supporting development of standards
 - HL7, OMG, HSSP, IHE and WS-I represent our key focus
 - Data models, Service APIs, Security, Workflow, etc.

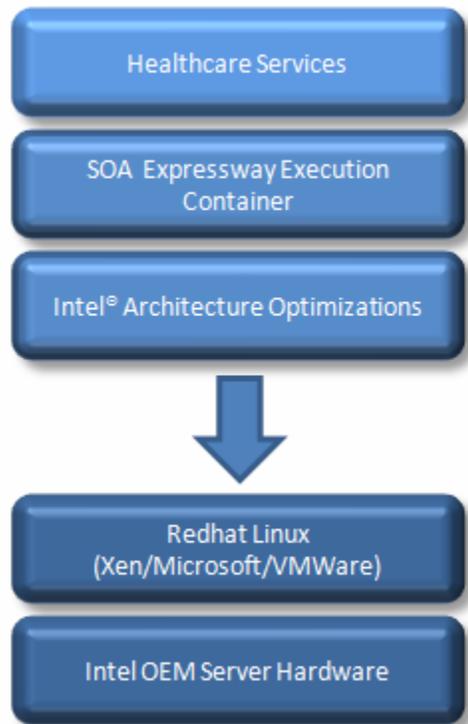


Implementing Performance and Scalability of an SOA at scale....

- The SOA network model is semantically precise, loosely coupled, and highly flexible
- Using XML, SOAP and highly recognized standards make this possible
- These standards are compute intensive
- Large scale data volumes and time sensitive SLA's require substantial capital or SOA optimizing technology to operate effectively
- Key capabilities to look for in SOA optimizing technology:
 - Is cluster capable
 - Accelerates processing of data payloads, network protocols and workflow
 - Combines the common functions of protocol mediation, data translation and process automation in one stack



Intel SOA Expressway for Healthcare



Feature Overview

- **Software platform for Healthcare SOA network**
- **Hyper-ESB**
 - High performance, cross domain
 - Workflow and XML/WS-* acceleration; Non-XML Conversion
 - Built on proven technology acquisitions
- **Visual, Codeless Designer**
- **Optimized for Intel Architecture**
 - ICC, Thread Building Blocks
- **Appliance Manageability**
 - Alarms, alerts and logging
 - Cluster based, black-box management
- **Extensibility**
 - Onboard Java Integration Framework supports custom business processing
 - Protocol mediation with support for custom protocols
- **Soft-Appliance form factor**
 - Appliance manageability, Software flexibility
 - Windows/Linux support with VMM model



Demo at Booth

Thank You



Questions ... ???