



Object Management Group Cloud Computing Standards

Building a Multi-View Specification

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Approach to Cloud Computing Standards: Emergent Categories

1. **Meta-Element Association:** For defining "Distributed and non-deterministic computing" from the Cloud and SOA perspective
2. **Governance:** There is a Services Governance domain and a Cloud Governance Domain. The key is how to integrate these two POV for governing "Distributed and non-deterministic computing"
3. **SLAs:** For Services/Clouds
4. **SOA, Events, and Agents:** Defining communication among and within clouds between services enabled in these clouds.

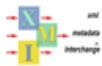
Emergent Cloud Computing Standards Category Targets



Meta-Element Associations, Governance, and SLAs

Presenter: Ralph W. Thrash

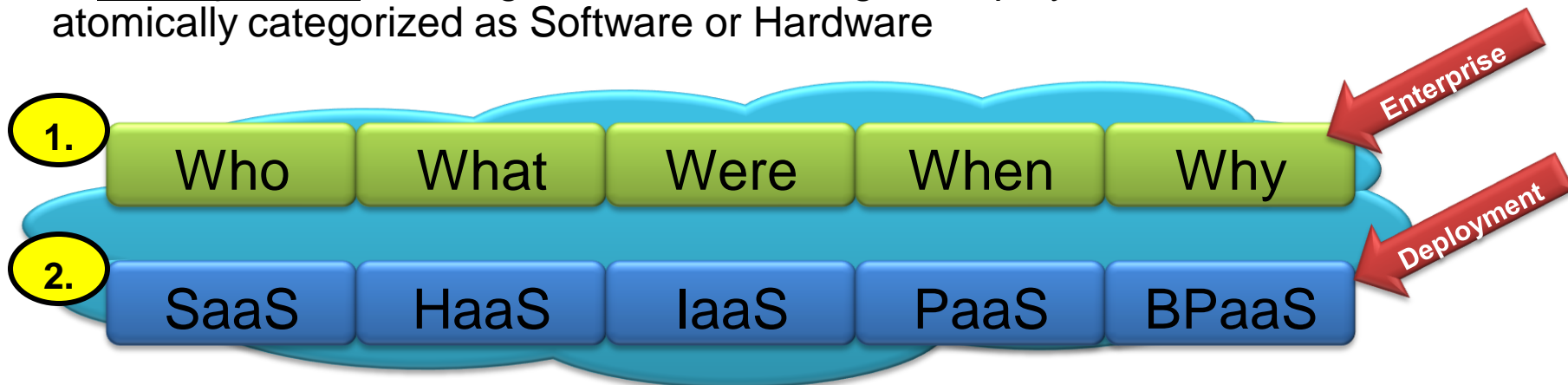
"Everything should be made as simple as possible, but not simpler." ~ Albert Einstein



Meta-Element Association for Cloud Computing

DECLARATION:

- Cloud Computing is a distributed nondeterministic system
- Categorization and typing of the fundamental computational archetypes for Cloud Computing is required.
- Association can be driven at two distinct Meta-Element levels:
 - 1. **Enterprise:** Meaning areas of enterprise components germane to Operational Architecture of any given enterprise
 - 2. **Deployment:** Meaning areas of technological deployment level architectures atomically categorized as Software or Hardware



Meta-Element Association is Required for Building Requisite Standards

Governance For Cloud Computing

- Cloud Computing as a distributed nondeterministic system requires discrete governance models.
- These governance models can be categorized at the Enterprise and Deployment levels of elaboration
 - **Enterprise Level** Governance elaboration is best achieved based on Enterprise Architecture Frameworks

Enterprise Architecture is the organizing logic for business processes and IT infrastructure reflecting the integration and standardization requirements of the firm's operating model. [1]

Zachman et al.

- **Deployment Level** Governance elaboration is derived from the OMG Specification for Deployment and Configuration of Component-based Distributed Applications

OMG Document mars/2003-03-xx, March 3, 2003

Specification for Deployment and Configuration of Component-based Distributed Applications

Proposal to the OMG MARS RFP: Deployment and Configuration of Component-based Distributed Applications

Joint Revised Submission

Submitters

- Franklin DODS
- Microsoft Corporation
- Rockwell Collins

Supporters

- BAE Systems
- METRA Corporation
- B&W Systems
- ITT Industries
- Hamilton Corporation
- Denelcor Systems
- France Telecom
- Siemens Corporation
- Lockheed Martin

OMG Document mars/2003-03-xx, March 3, 2003

OMG Deployment Standards Definition

PIM Lacking

Need for:

Alternative, hierarchical, implementations of components (assemblies), as well as multiple possible configurations of packages of components

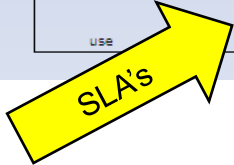
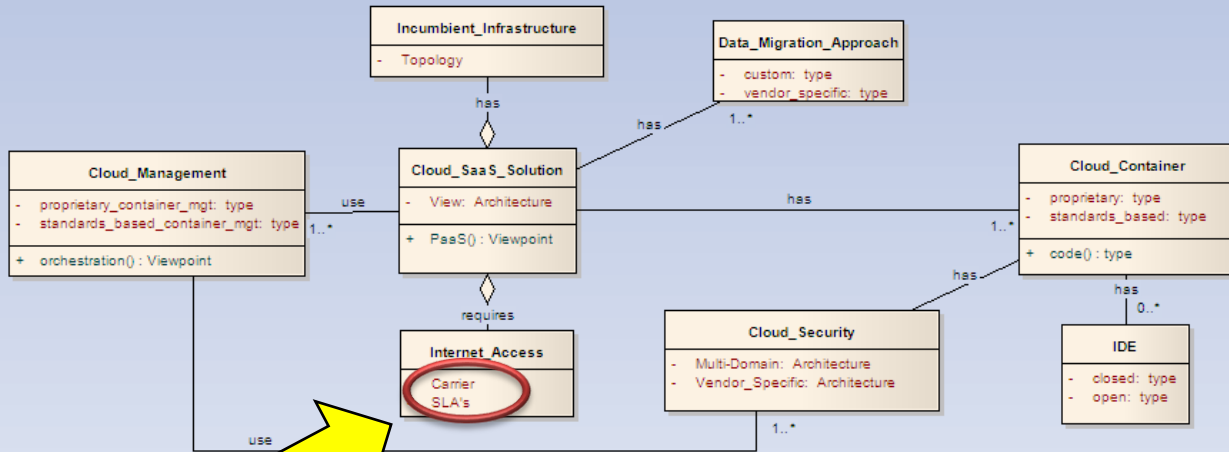
“How” to describe but..
No “What”

[1] MIT Center for Information Systems Research, Peter Weill, Director, as presented at the Sixth e-Business Conference, Barcelona Spain, 27 March 2007



SLA's for Cloud Computing

SaaS Deployment Archetype Candidate



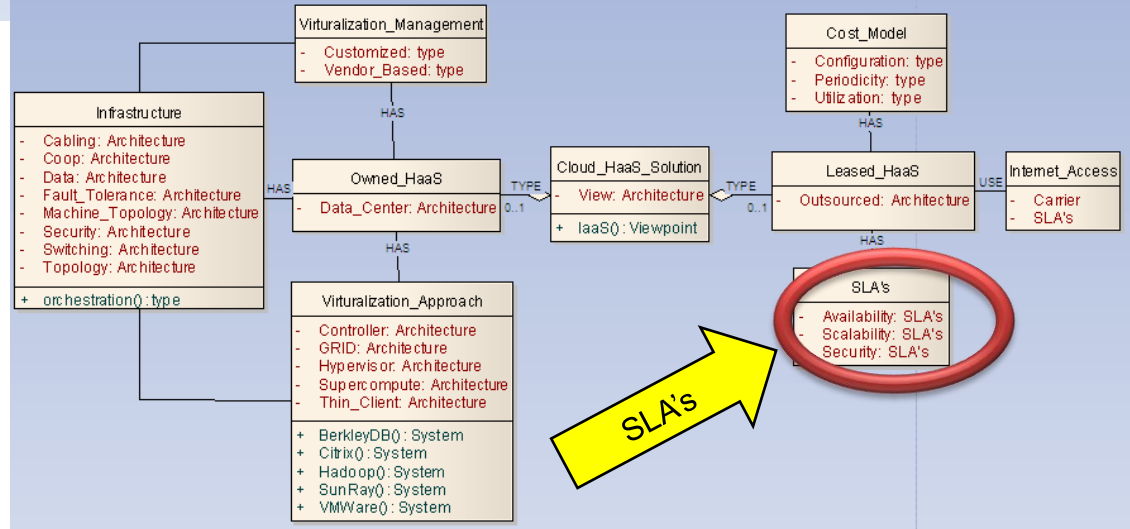
SLA's

Vendor Driven, Contract Mechanism Oriented, Archetype Dependant SLA's for Leased HaaS

Traditionally oriented SLA's for Owned HaaS with much technical conformity to existing best practices

SaaS design and vendor Driven, Archetype Dependant SLA's

HaaS Deployment Archetype Candidate

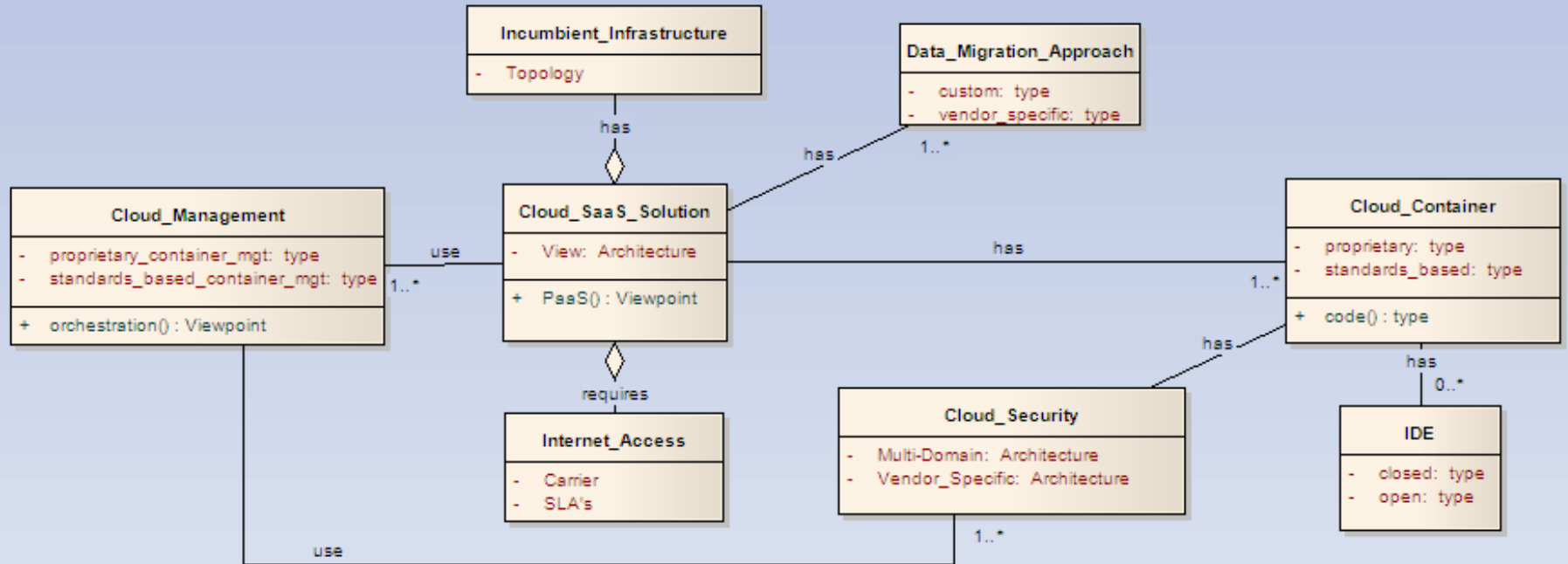


SLA's

SLA's are dependant upon the particular Cloud Computing Archetype

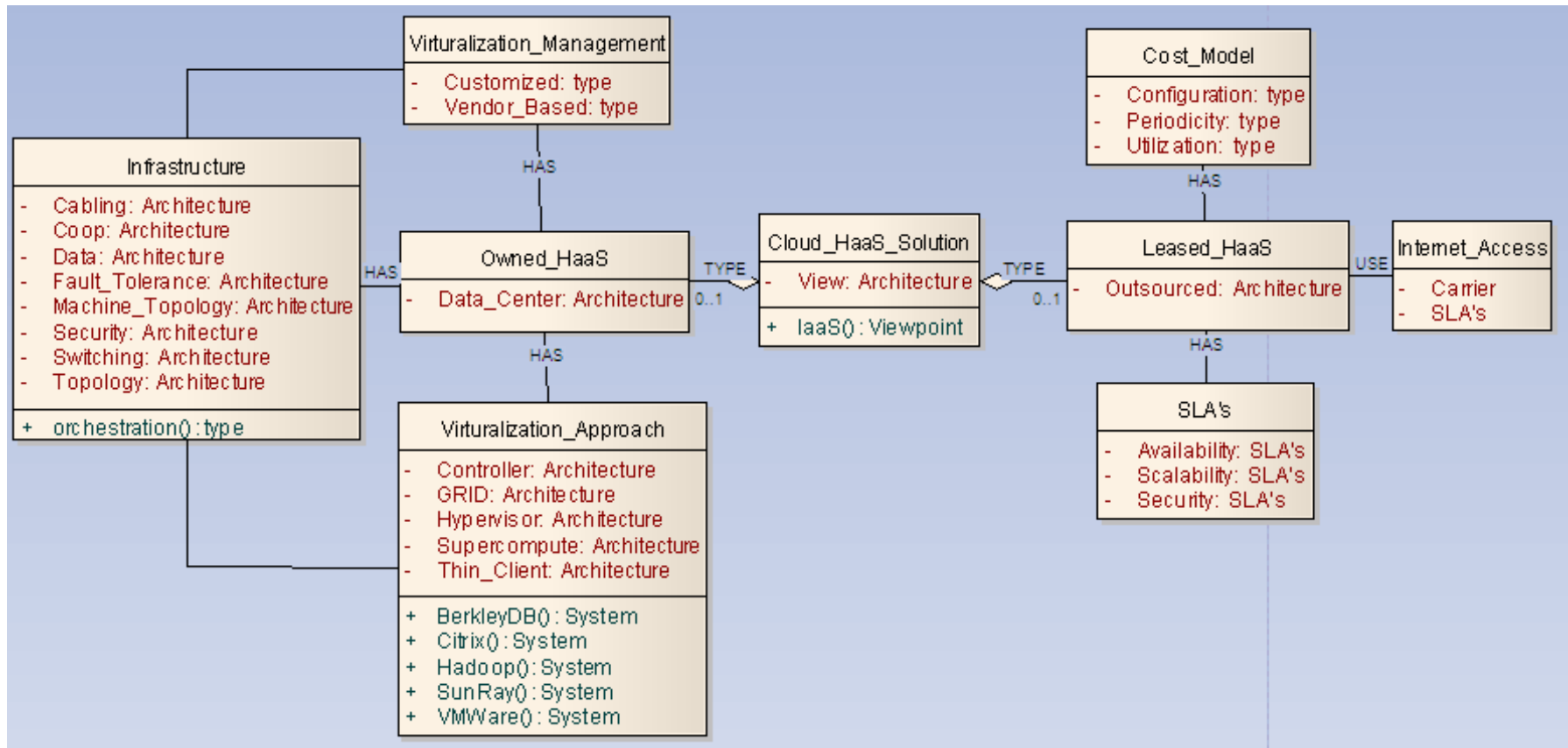


Candidate SaaS Archetype



Well Defined Foundational SaaS Cloud Computing Archetype is Required

Candidate HaaS Archetype



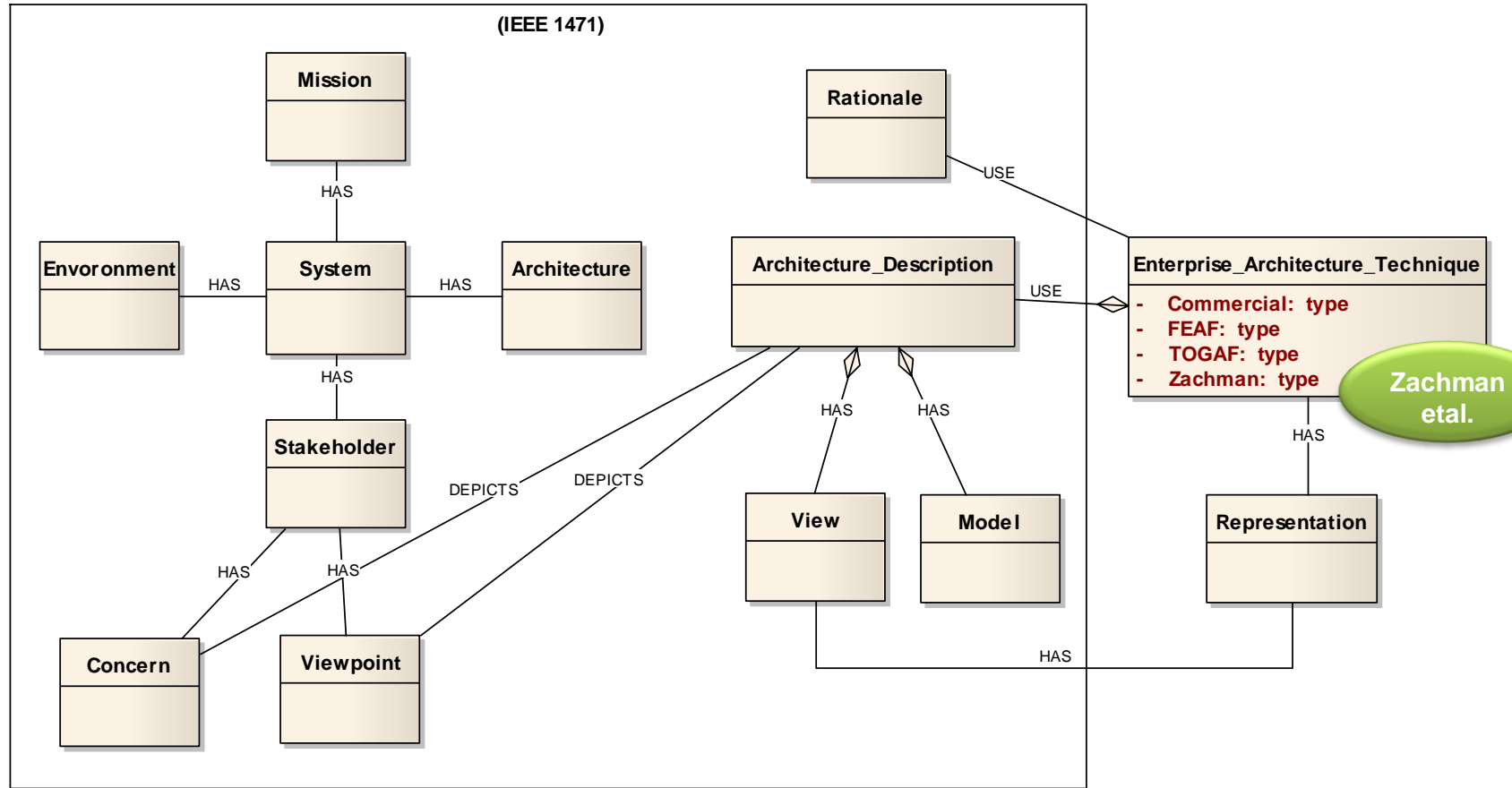
Well Defined Foundational HaaS Cloud Computing Archetype is Required

Enterprise Archetype

class Applied_Analytics

Applied Analytics for Cloud Computing

(IEEE 1471)

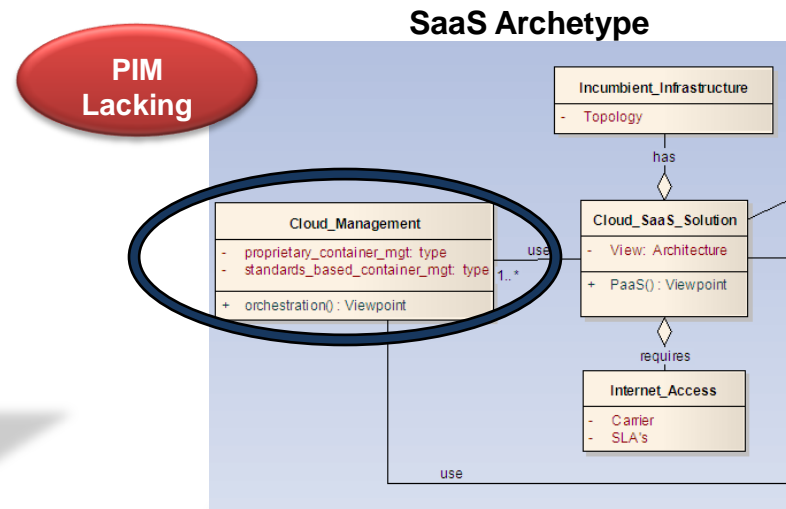
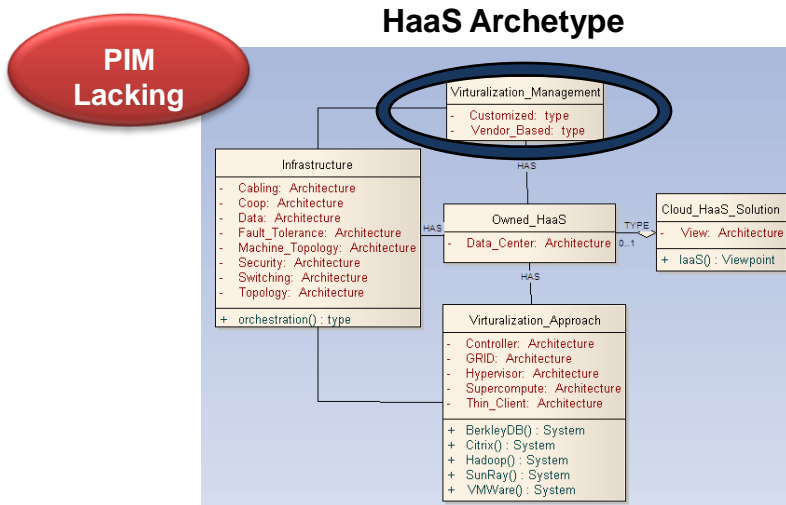


Well Defined Foundational Enterprise Archetype is Required



Events and Agents for Cloud Computing

- Cloud Computing distributed non deterministic nature presents a new architecture for Events and enabling Agents (SOA)
 - Principally based upon foundational Cloud Archetype
 - Distributed nature and archetype defines Event/Agent conformance
 - SLA's are closely related to the Event/Agent typing, driven by a particular Cloud Archetype
 - Events and Agents for HaaS versus Events and Agents for SaaS Archetypes



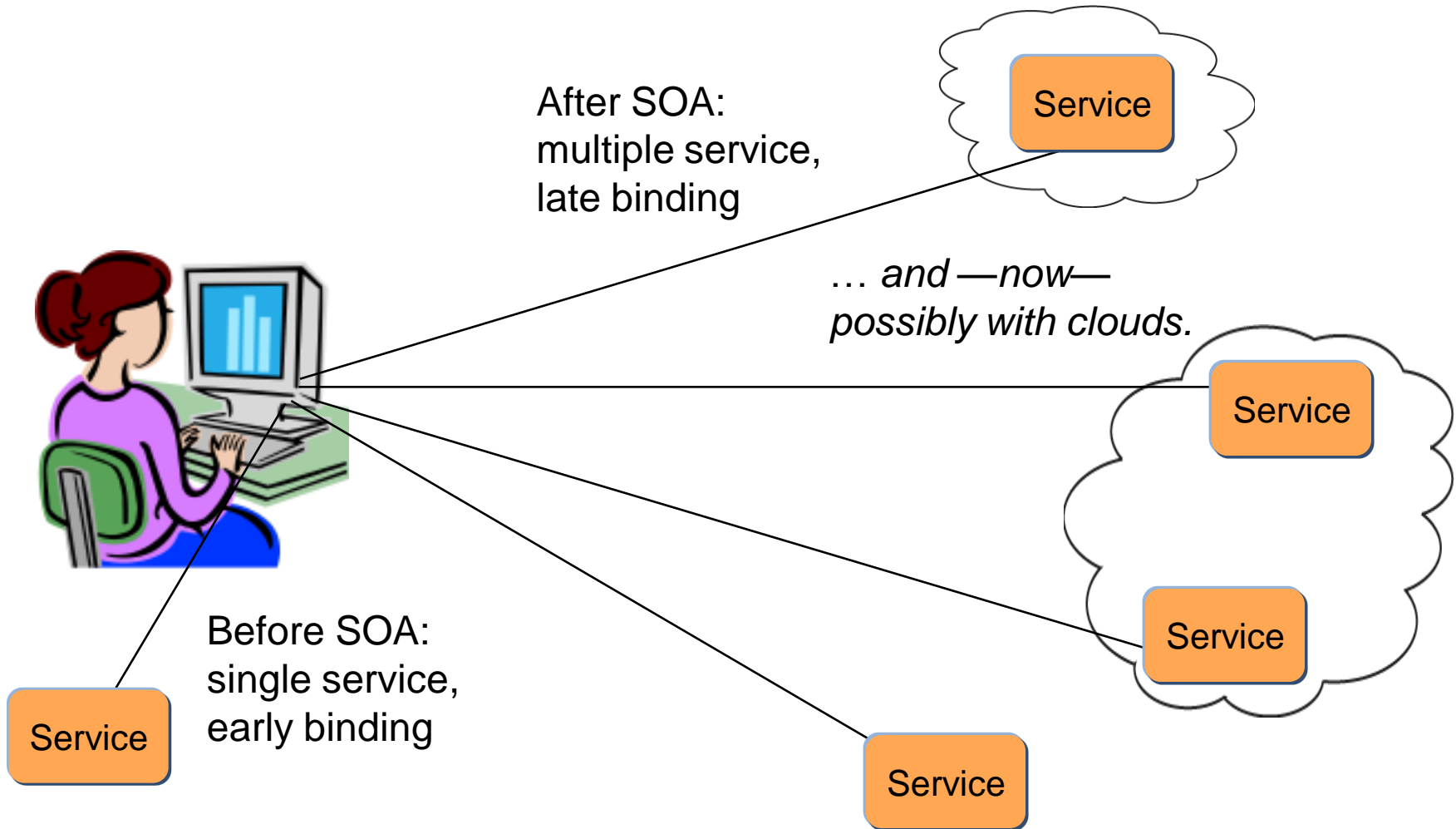
Events , Agents and Cloud Computing Archetypes are Mutually Co-dependant Elements

Clouds with: SOA, Agents, and Events

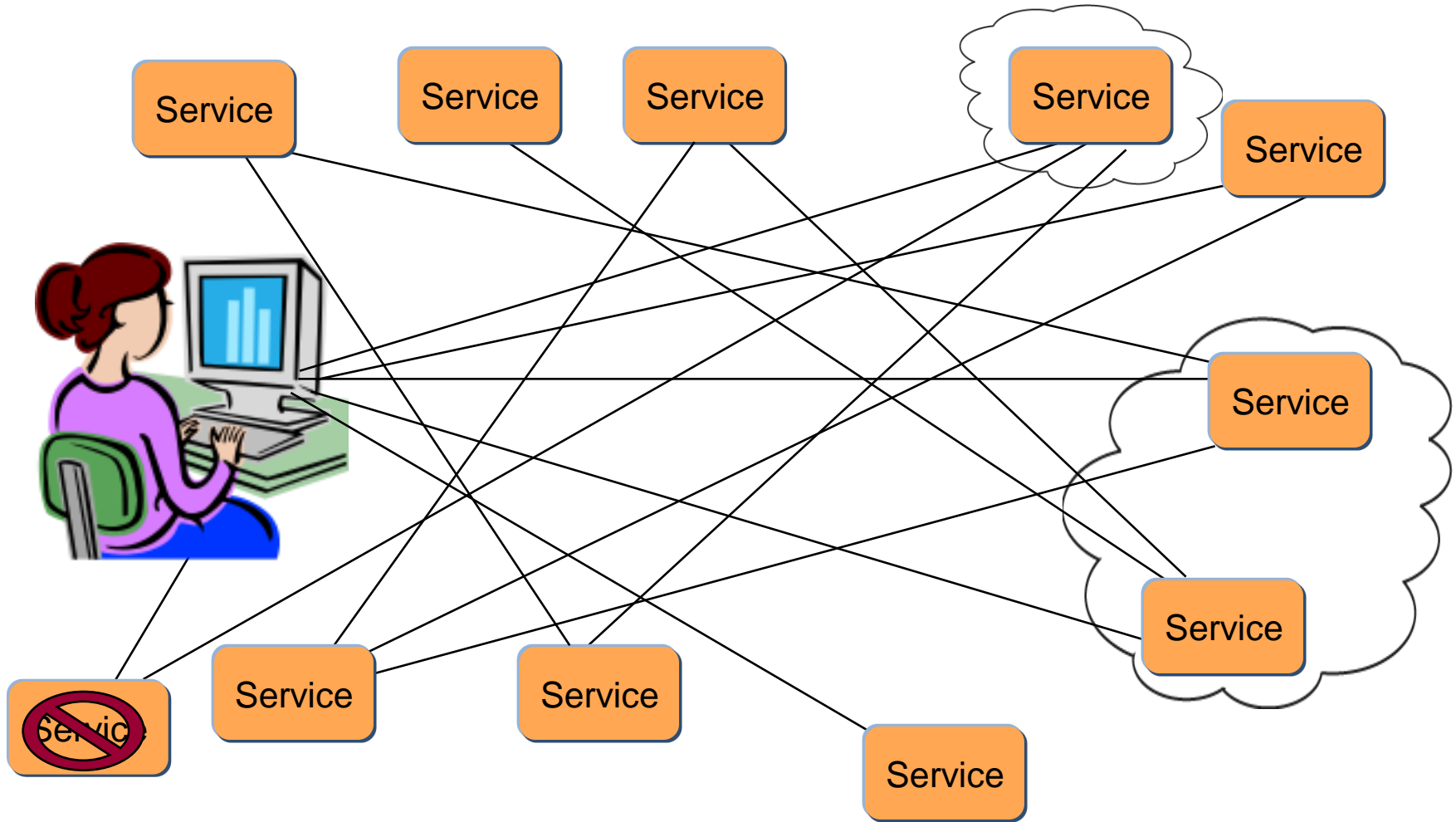
Presenter: James Odell



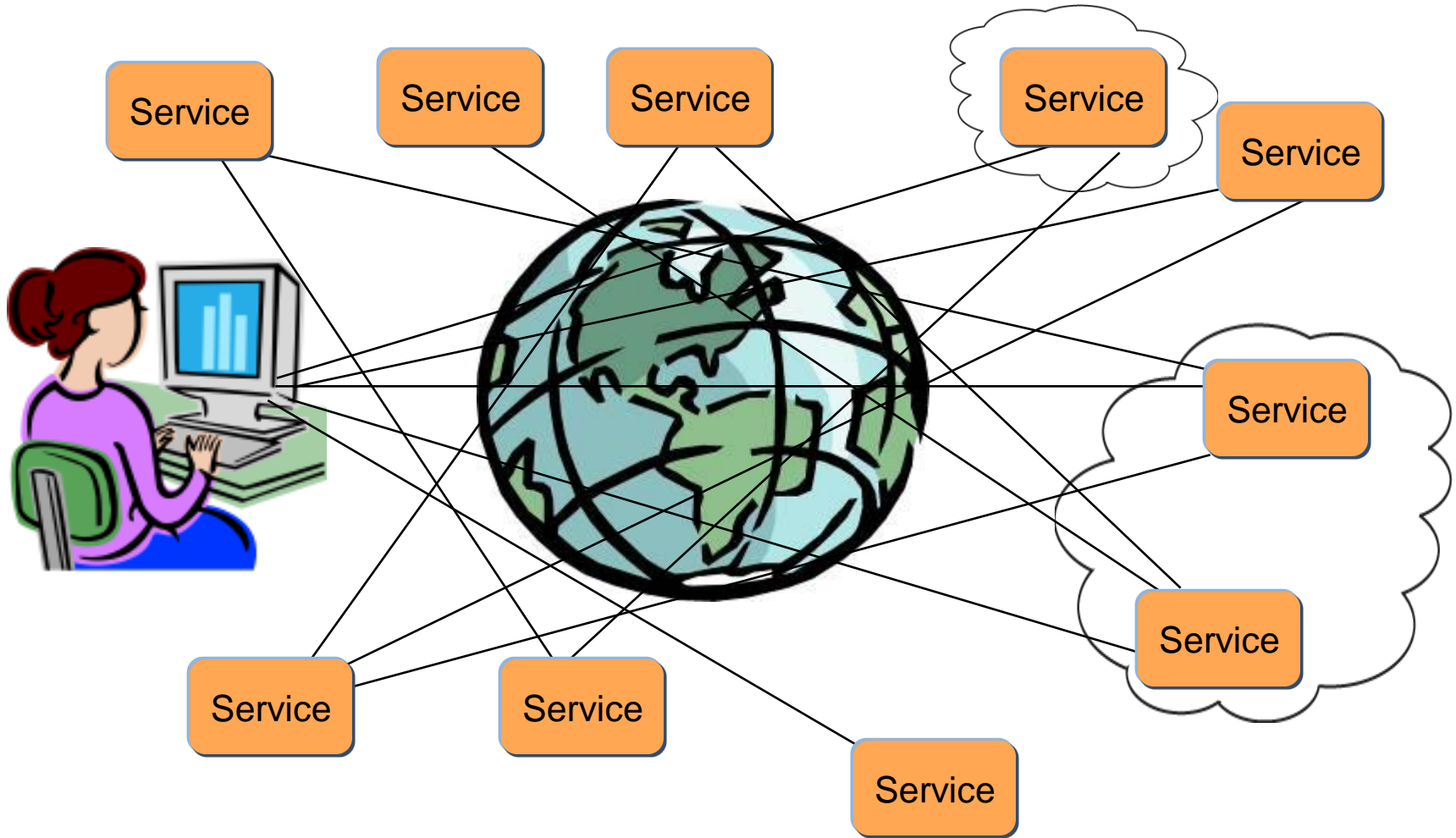
Before and after SOA – and Clouds



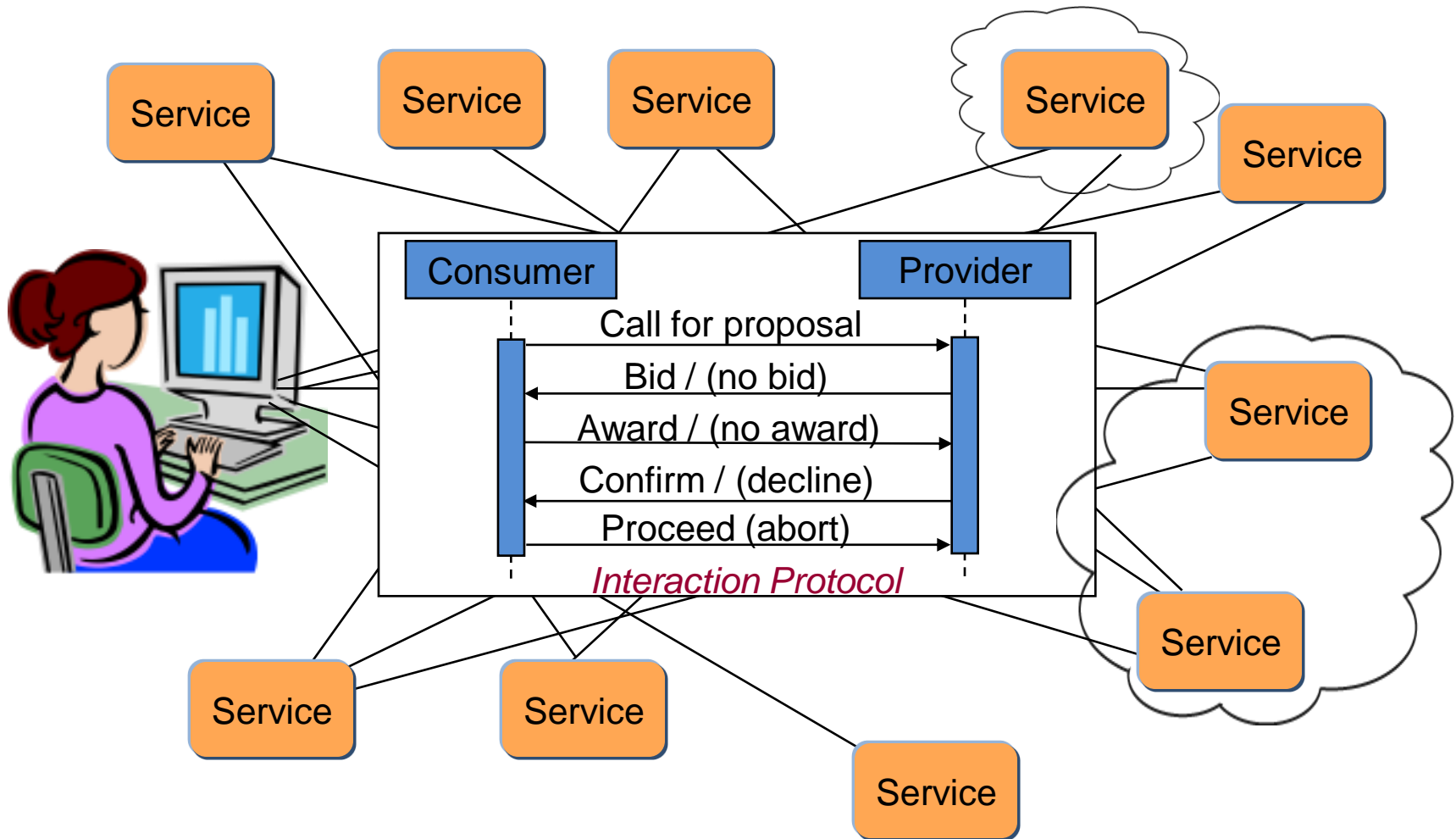
Scalable and adaptive?



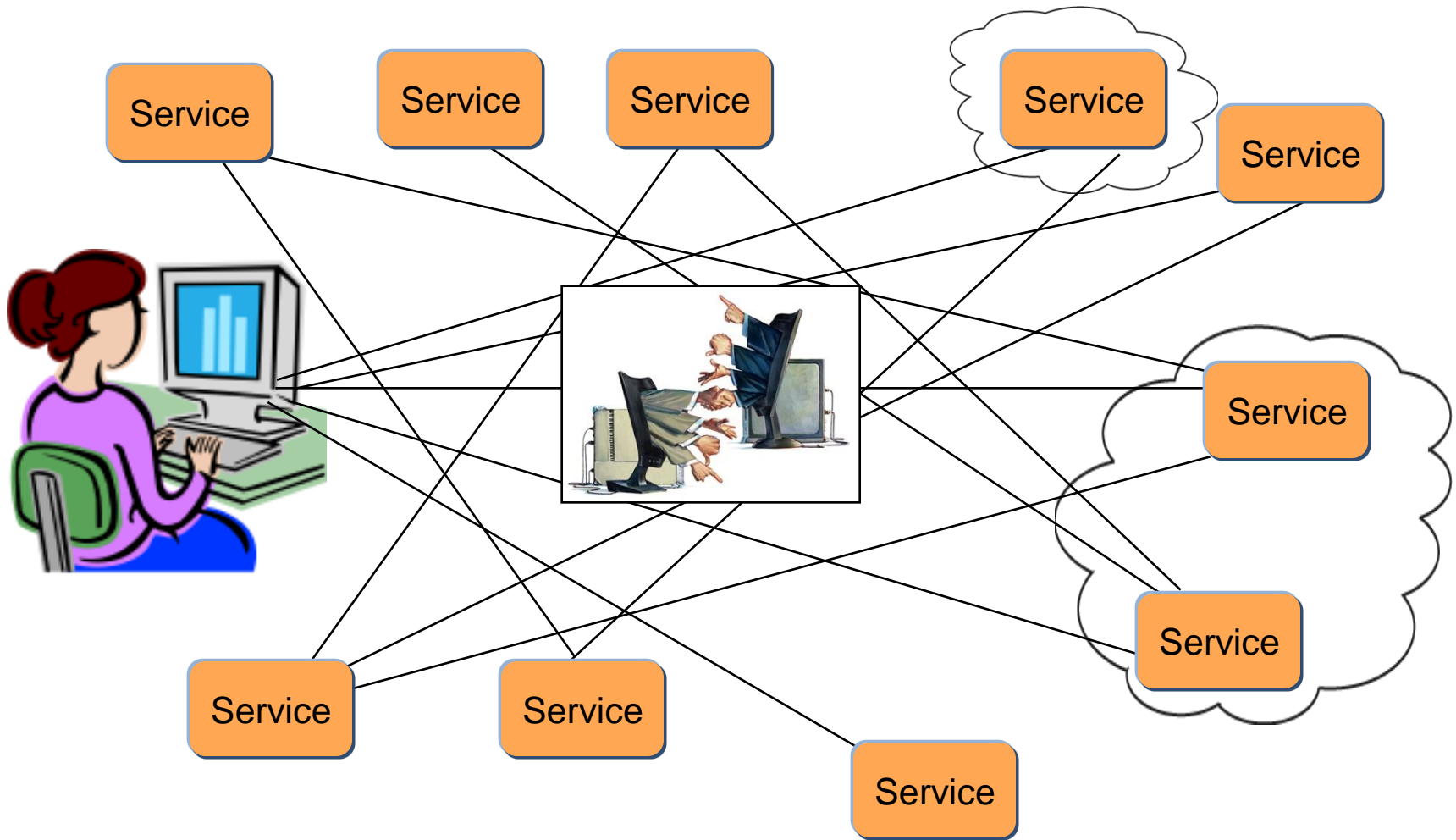
Scalable, adaptive -- and boundaryless ?



It's more than simple synchronous messages

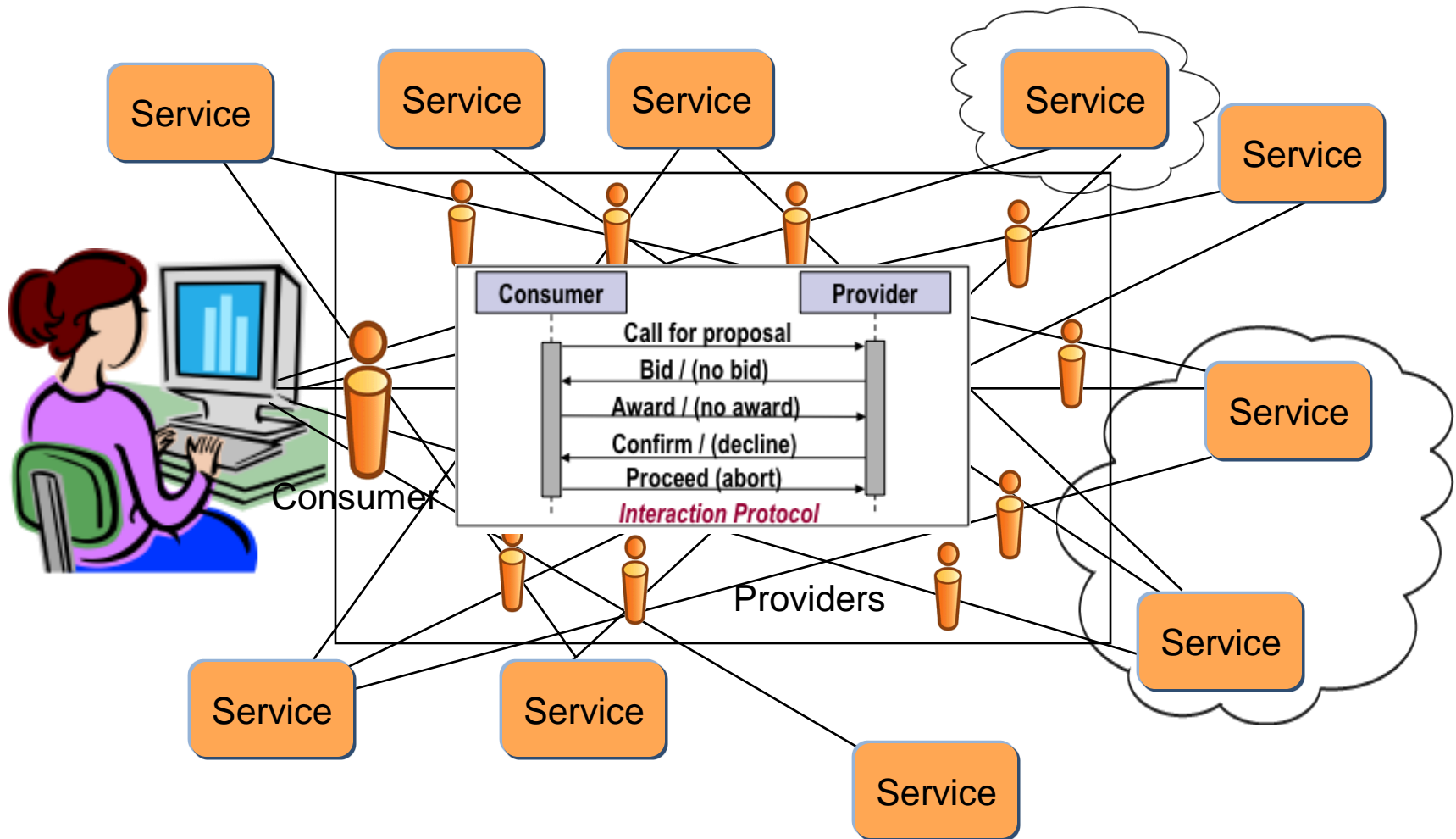


Adaptive, proactive interaction

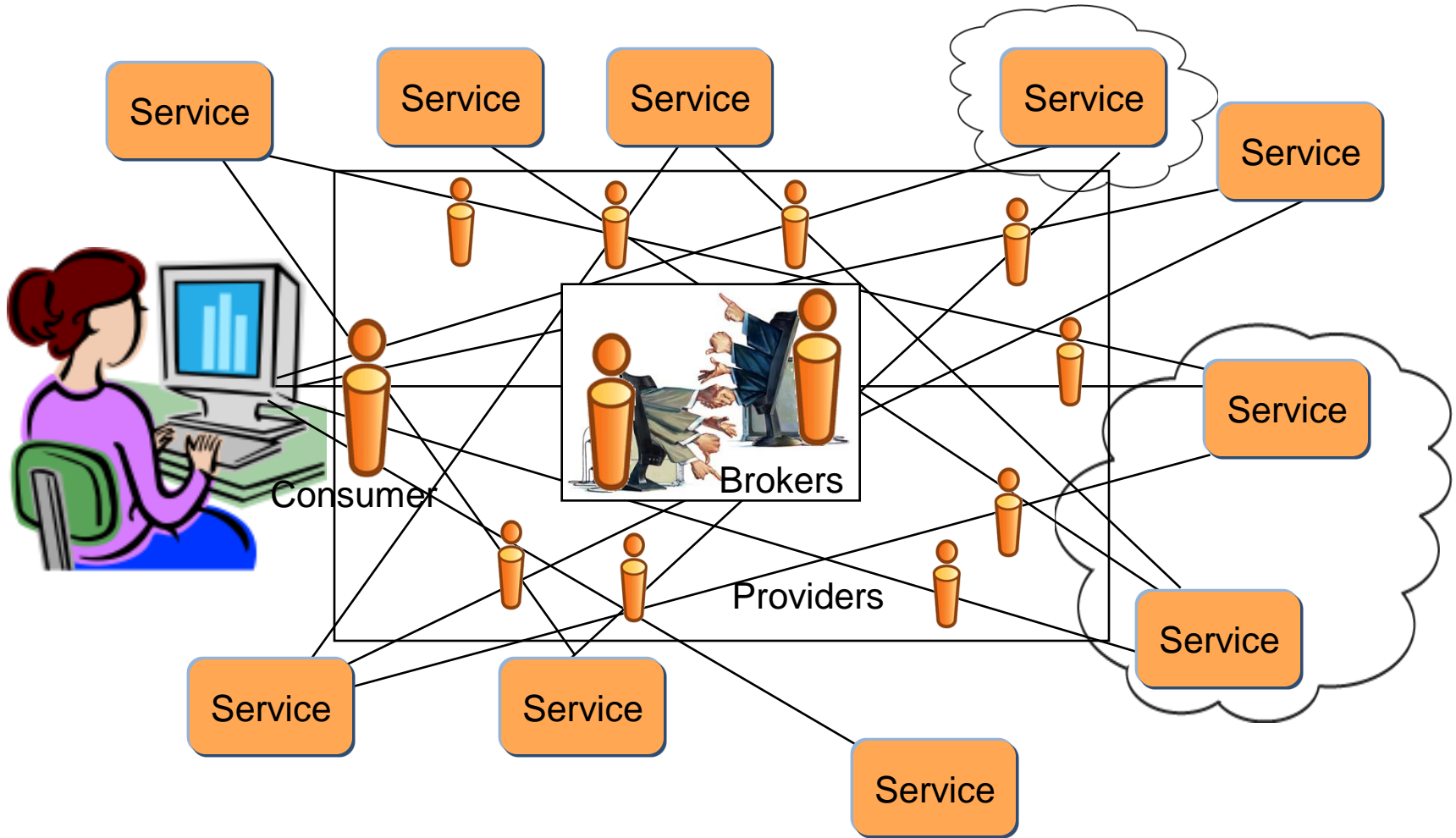


Adaptive, proactive interaction—advanced software

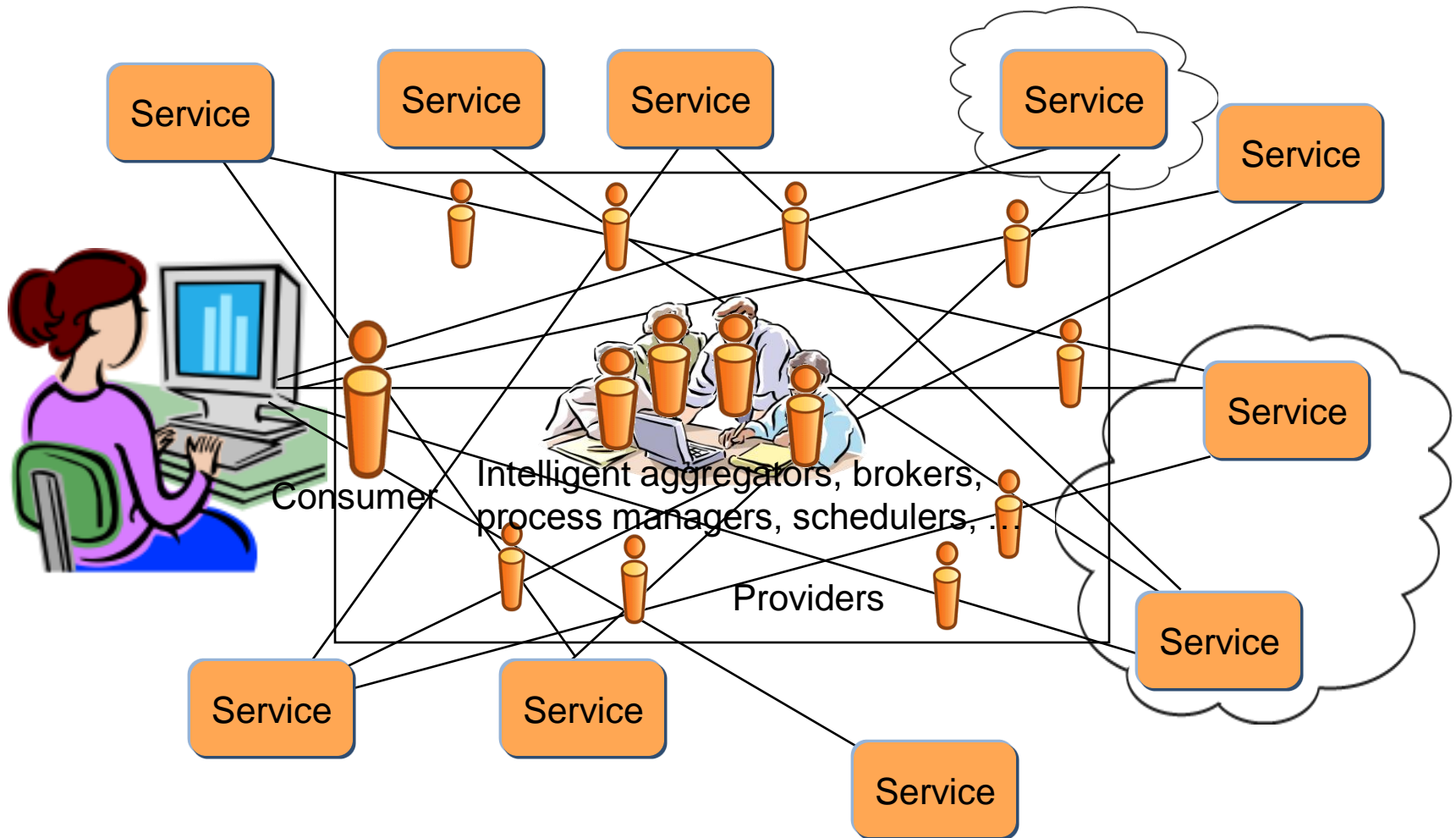
Using agent-based software



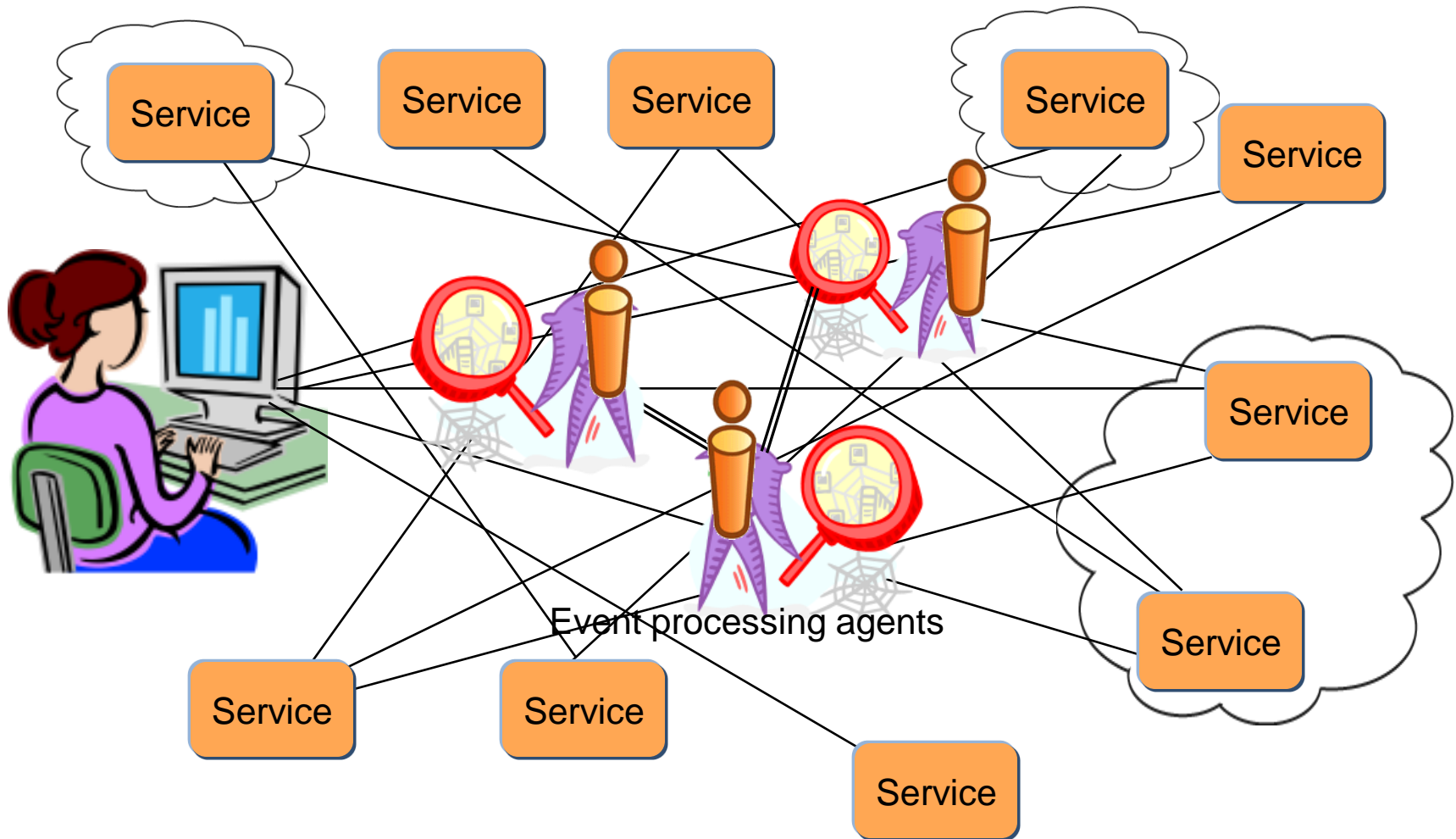
Adaptive, proactive interaction—advanced software



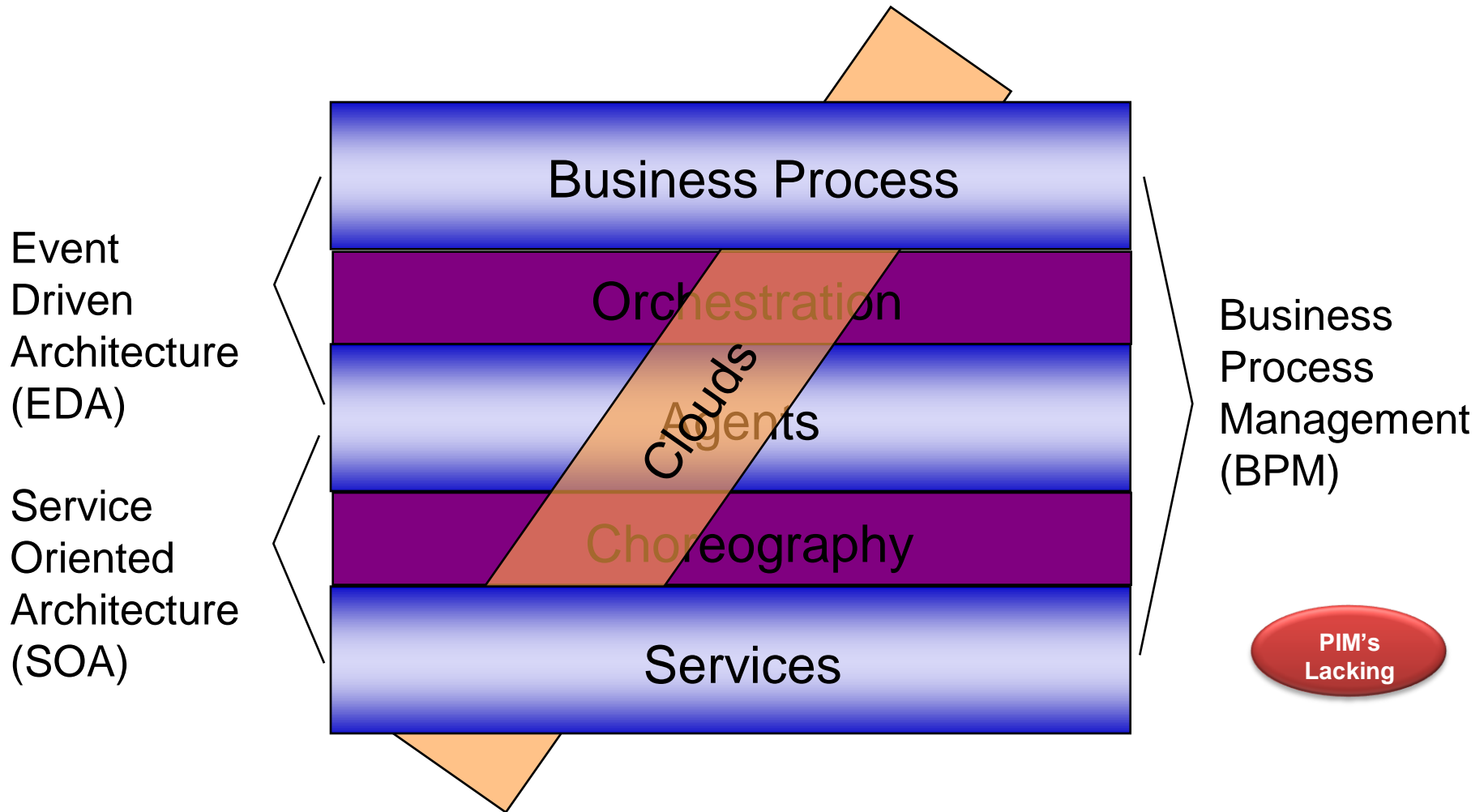
Collaboration and aggregation



Event Driven (EDA) and complex-event processing (CEP)



SOA, EDA, BPM, Agents — and Clouds



All must be considered for a proper foundation and support.



Approach to Cloud Computing Standards: Emergent Categories

1. **Meta-Element Association:** For defining "Distributed and non-deterministic computing" from the Cloud and SOA perspective ~ **Define the Meta Elements**
2. **Governance:** There is a Services Governance domain and a Cloud Governance Domain. The key is how to integrate these two POV for governing "Distributed and non-deterministic computing" ~ **Describe EA Approaches**
3. **SLAs:** For Services/Clouds ~ **Articulate & Define Archetypes**
4. **SOA, Events, and Agents:** Defining communication among and within clouds between services enabled in these clouds. ~ **Build Fundamental Categories**

Emergent Cloud Computing Standards Category Targets for RFP's

