



Wolfgang R. von Stuermer  
CTO, Group DCA (USA)

**Definition of Infrastructure Services  
Position Paper:  
*Marketable Trading Value of a Service***

Brussels, 21 October 2008



- **There seems to be very little attention given to the economic aspects of a SOA architecture, especially cross-entity types, in most of the available specifications.**
- **The assumption is that everything works 100% all the time - unrealistic. An assumption based on the market economics of demand and supply and the perceived value of published acceptable performance metrics may be more favorable for end users.**
- **Issues of availability and fluctuations in the performance of the systems (e.g. Amazon Web Services' EC2) are not addressed in pricing of the service.**
- **The price point charged for these web services remains fairly static - the service provider determines the price/value of the service, not the market.**
- **End users are given no option to negotiate a different price, based on their needs even if there may be a good economic case in making the service price negotiable.**
- **Hardly any specification addresses solutions for automated service cost determination based on infrastructure services performance or benchmark results reports.**

- **Existing Specifications That Somewhat Address The Issue**
- SeCSE specification - facets and SLA negotiation
- FCAPS.ITU - accounting & billing aspects
- EbXML - B2B cost-accounting related aspects of a service exchange

- **When it comes to value assigning, most concepts deal with the processing and charging of a fixed, predetermined value. None (or possibly very few), however, address aspects of automatically connecting the commercial value of a service to its underlying system's TCO, ROI and performance metrics or external reputation ratings (e.g. Ebay trustworthiness indicators) and historical service satisfaction ratings (e.g. User 'reviews'), as well as there seems to be very few services defined (e.g. In form of brokers/agents) that would aid in facilitating the automatic (or manual) trade of advertised services.**
- **Current registry and repository concepts and implementation falls also short of dealing with the potential economic values of services; mostly providing 'yellow pages' style service registration and discovery capabilities.**
- **All repository models are based on centralized approaches, whereas a peer-to-peer style distribution of services values and trade negotiations is imaginable via p2p oriented negotiation services.**

- **Section 6.1 of the NEXOF-RA Deliverable D7.1 lists as non-functional aspects/requirements**
  - *Management,*
  - *reliability & availability,*
  - *performance & scalability,*
  - *privacy, security & trust,*
- **but makes no mention or reference to**
  - **service cost/price determination,**
  - **competitive cost/price discovery,**
  - **cost/price fluctuation in dependence of reportable performance metrics**
- **Is it fair to assume/demand that the advertised price (wherever it is advertised) stays the same even if there are measurable changes in the performance or availability of the underlying system due to taxation of the underlying system's infrastructure by other services or users of the same service are present and the advertised QoS levels of a given service are not reached.S**

- **It is imaginable, that upon**
  - **automatic determination of value fluctuations, machine-based re-negotiations of the cost/price values are triggered to satisfy both consumer and provider of the service automatically without service interruption or need for later accounting balance consolidations and manual audits.**
  - **publication or distribution of a service's performance metrics, historical SLA satisfaction levels, user ratings and reputation scores, external price builders (i.e. agent & broker services) assign a real-world trading value to the published service.**

- **As a crude analogy, one could say that statistically humans are more likely to pay more for better, guaranteed service, so why shouldn't it be the same in the machine world, where quantifiable metrics are easier to obtain and published than in the human world.**
- **And why shouldn't agent services find the best prices for other services there are charged with to execute on a dynamic services marketplace? I see no reason why not. Price negotiations are typically in the best interest of business, instead of blindly succumbing to a fixed price.**

- I propose as a contribution to define a set of infrastructure services that are concerned with the determination of the marketable trading value of other services and their publication and registration in a services exchange market scenario.
- Secondly I propose as a contribution the definition of Patterns that enable the analysis of the metrics necessary to determine the market value and aid in the trading of the service(s).
- These contributions match the scope of this topic in that the proposed services would motivate the production and validation of specifications that would enable machine readable descriptions of non-functional, dynamic characteristics of the proposed services, as well as integrating with and exposing low-level ICT functionality in the context of determining a service's individual as well as composite services value.

- **Dependencies may exist to the topics of:**
- Service Description
- Service Discovery
- Scalable Approaches to Service Oriented Infrastructure
- Federated Registries (Future Calls)
- Infrastructure service reference points (Future Calls)
- Description of non-functional aspects (Future Calls)
- SLA and QoS (Future Calls).