



SOA Patterns

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Everybody
wants SOA
because it is oh
so wonderful...



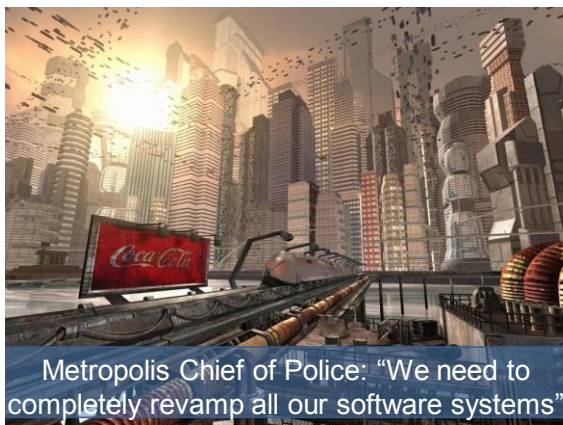
Everybody forgets that every
rose has it thorns





DIRK GENTLY'S HOLISTIC CONSULTING COMPANY



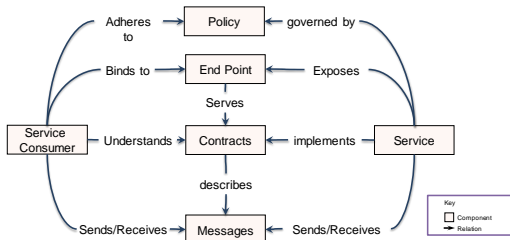


Software architecture is...

What the software architect does

Software Architecture is...

- collection of the fundamental decisions about a software product/solution designed to meet the project's quality attributes
- Includes the main components, their main attributes, and their collaboration
- expressed in several levels of abstraction (depending on the project's size).
- Architecture is communicated from multiple viewpoints
- Tradeoffs are made explicit

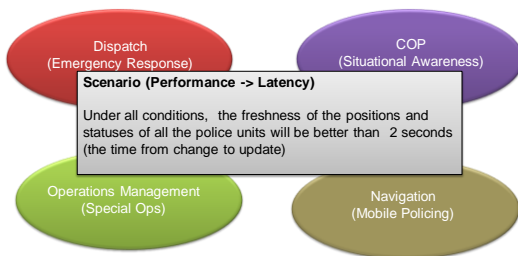


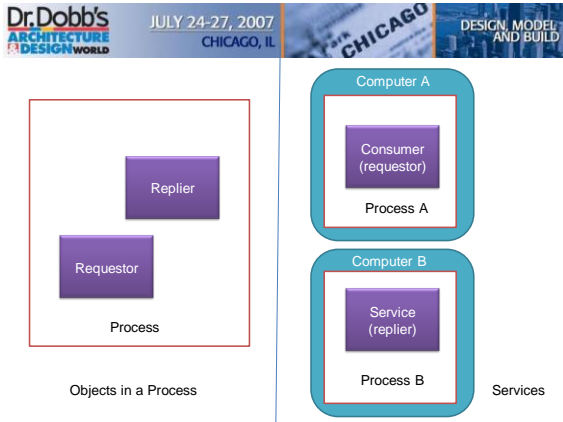


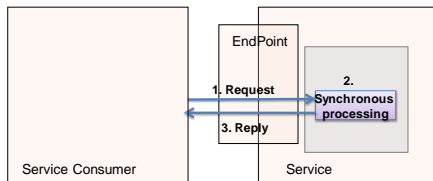
SYSTEM OVERVIEW

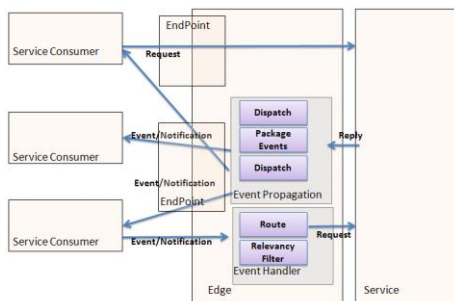


Dilemma: Data Propagation



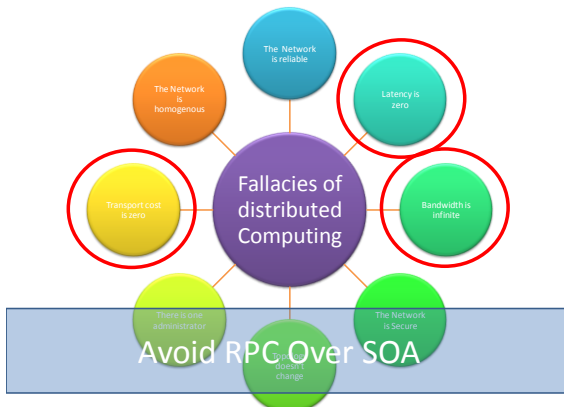




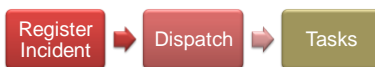




VOTE



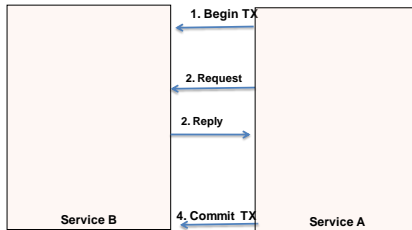
Dilemma: Cross-Service Transactions



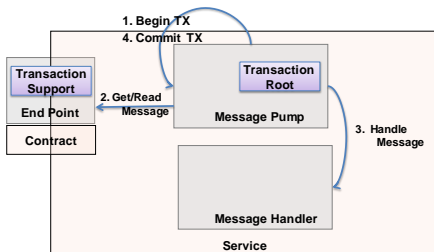
Scenario (Integrity > Consistency)

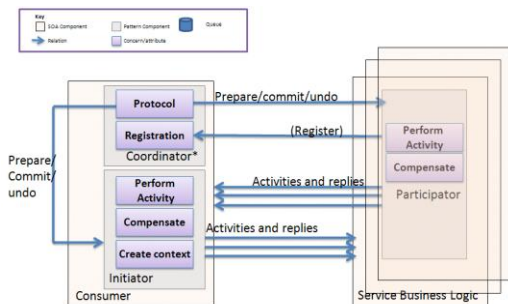
Under all conditions, an incident accepted by the system cannot get lost

ACID Transactions



Trasnactable Service





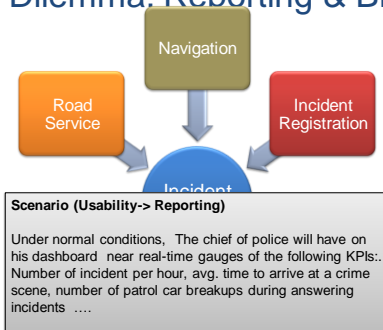
Saga

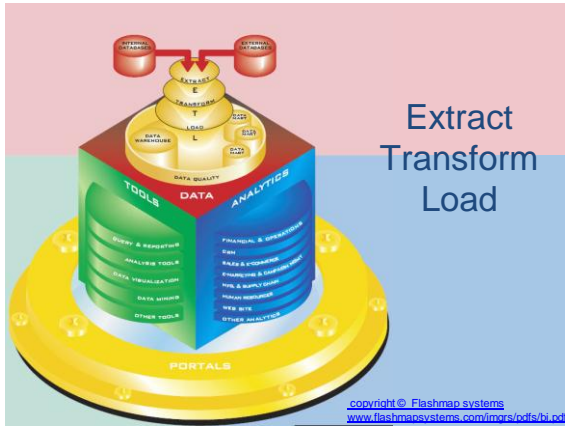


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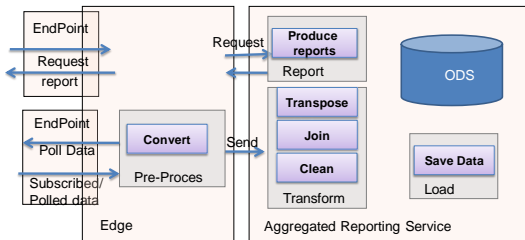
Dilemma: Reporting & BI





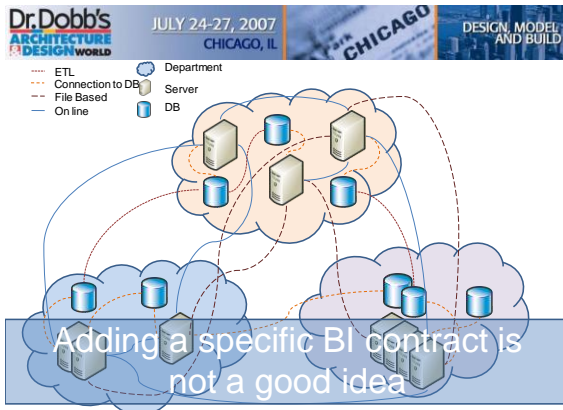


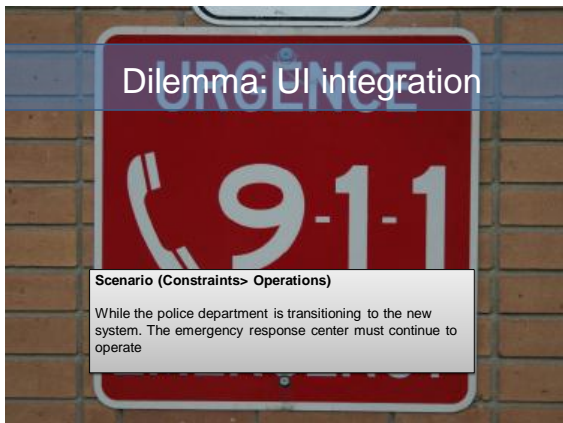
Aggregated Reporting

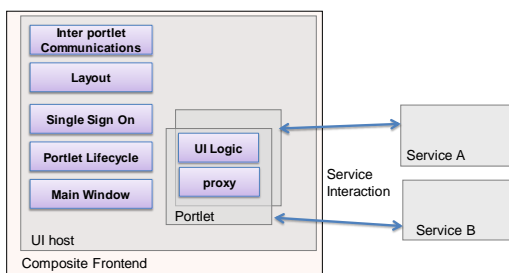




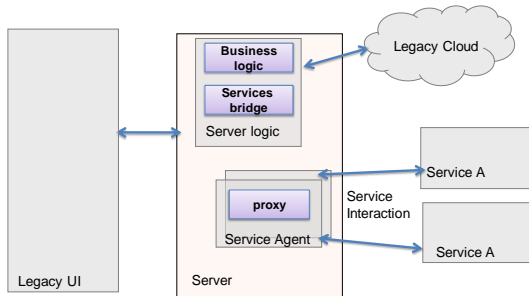
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Client/Server/Service

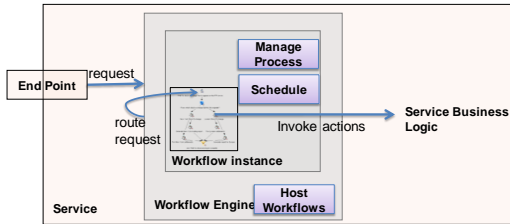


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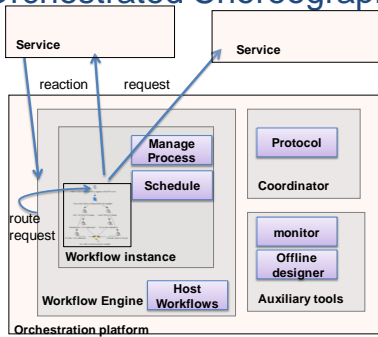
Dilemma: Dynamism



Workflodize



Orchestrated Choreography



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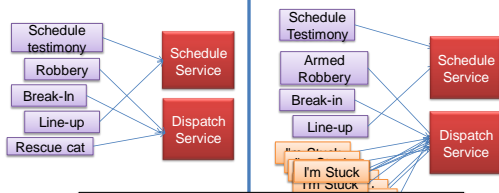






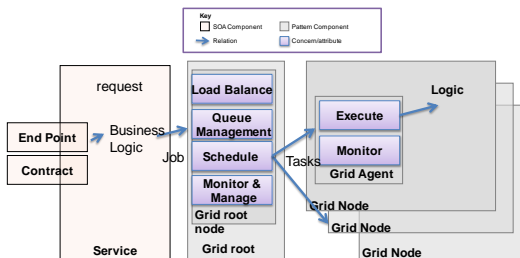
PERFORMANCE & SCALABILITY

Dilemma : peak Loads

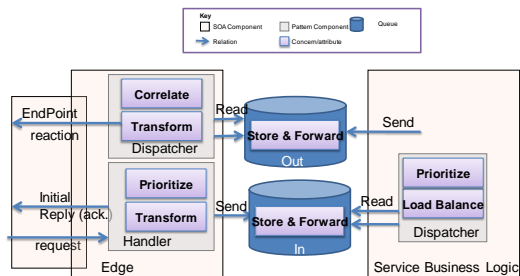


Scenario (Performance> Scalability)

In case of unexpected emergency, the emergency response center would be able to handle 5 times the usual case load



Gridable Service



Decoupled Invocation



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Dilemma : throughput

Scenario (Performance> Latency)

Under normal conditions a call can be handled end-to-end in 30 seconds or less

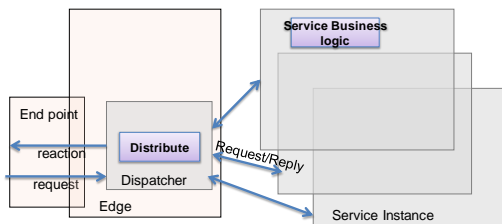


Scenario (Performance> throughput)

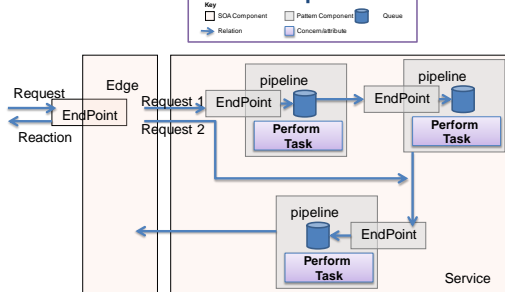
On a busy night the Emergency center would be able to handle up to 500 calls per hour



Service Instance



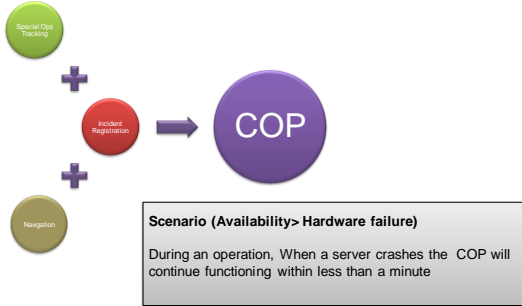
Parallel Pipelines



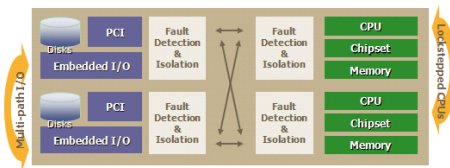
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AVAILABILITY

What's in a 9

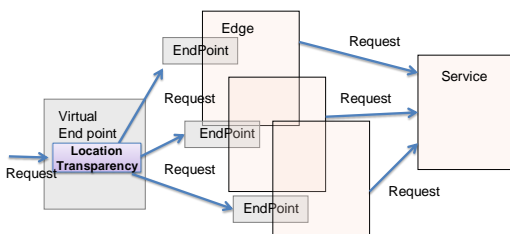


Failsafe hardware

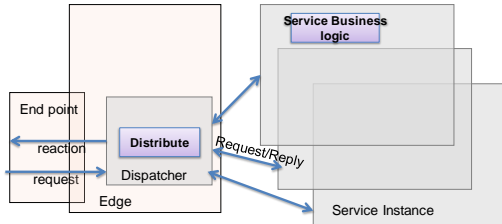


Status Technologies
FT Server

Virtual Endpoint

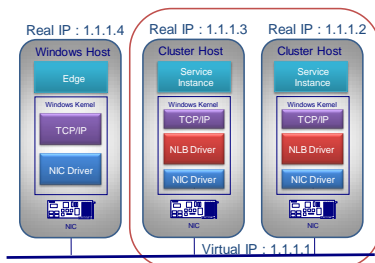


Service Instance



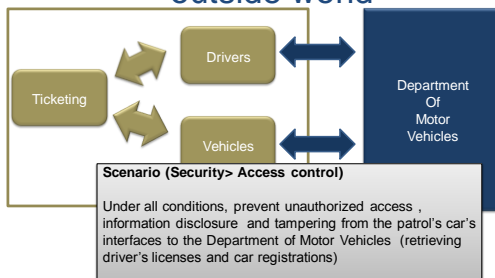
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Service Instance with NLB

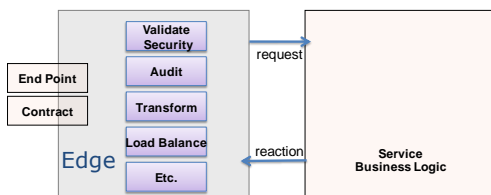


SECURITY & MANAGEMENT

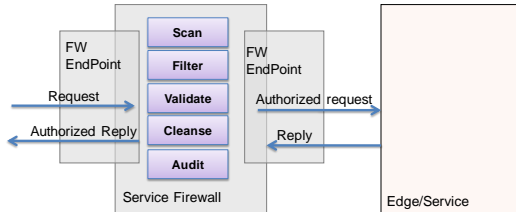
Dilemma: Interfacing with the outside world



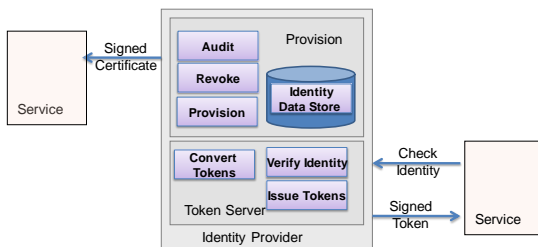
Edge Component



Service Firewall



Identity Provider



VOTE

Dilemma : Autonomy and Management

Scenario (Security> Governance)

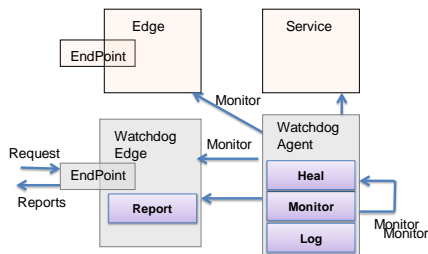
During development and operations, the enterprise architecture team will be able to ensure all services use secured channels

Scenario (Reliability> MTTR)

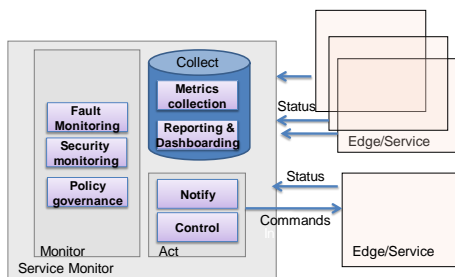
Under normal operations the time to discover a faulty service will be shorter than 2 minutes



Blogjecting Watchdog



Service Monitor





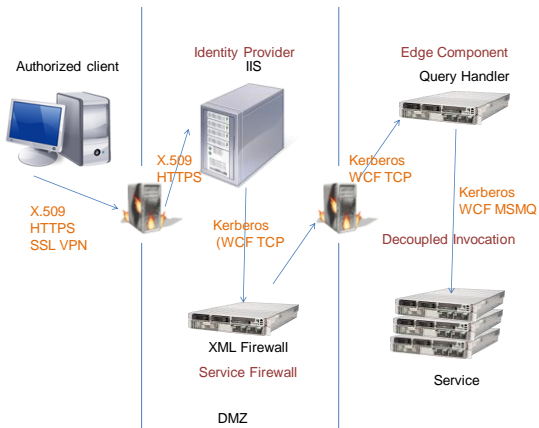
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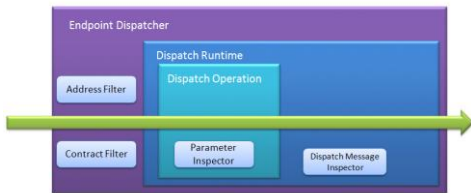
Mind the gap

Decision: Certificates for authentication & authorization





Implementing a Service Firewall



```
public void SetInterceptors(ServiceDescription serviceDescription, ServiceHostBase serviceHostBase)
{
    foreach (ChannelDispatcher ChannelDisp in serviceHostBase.ChannelDispatchers)
    {
        foreach (EndpointDispatcher EndPointDisp in ChannelDisp.Endpoint)
        {
            EndPointDisp.DispatchRuntime.MessageInspectors.Add(new ServiceMessageInspector());
            foreach (DispatchOperation op in opDisp.DispatchRuntime.Operations)
            {
                op.ParameterInspectors.Add(new ServiceParameterInspector());
            }
        }
    }
}
```

Getting to SOA is a long journey...





THANK YOU

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