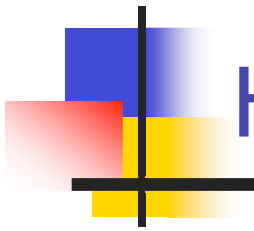
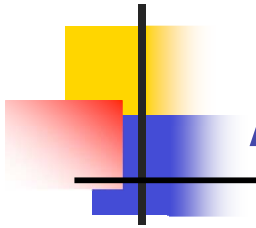


Web Services:
How Do You Actually Derive Value?

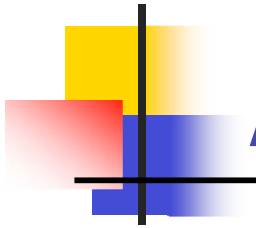
David Moskowitz

Productivity Solutions, Inc.



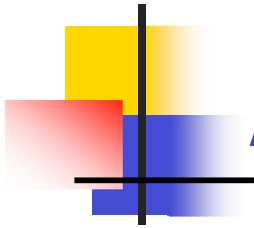
Agenda

- Common vocabulary
- SOA effectiveness: How do you know…?
  - What's really important
  - Security, standards, and services
- Cooperating and collaborating services
- What's the value?
- How do you really make it work?



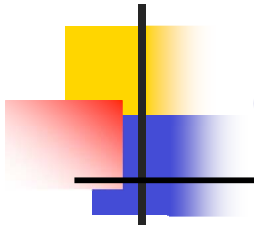
Architectures…

- Software architecture (50K ft level) defines system components & how they interact
  - Components aren't any specific type of object
  - Abstract "modules" deployed as one or more units on one or more servers
- The architecture defines the externally visible properties and their relationship(s).
  - Structure, relationships **and** patterns
  - Defines expectations expressed as a contract



Architectures…

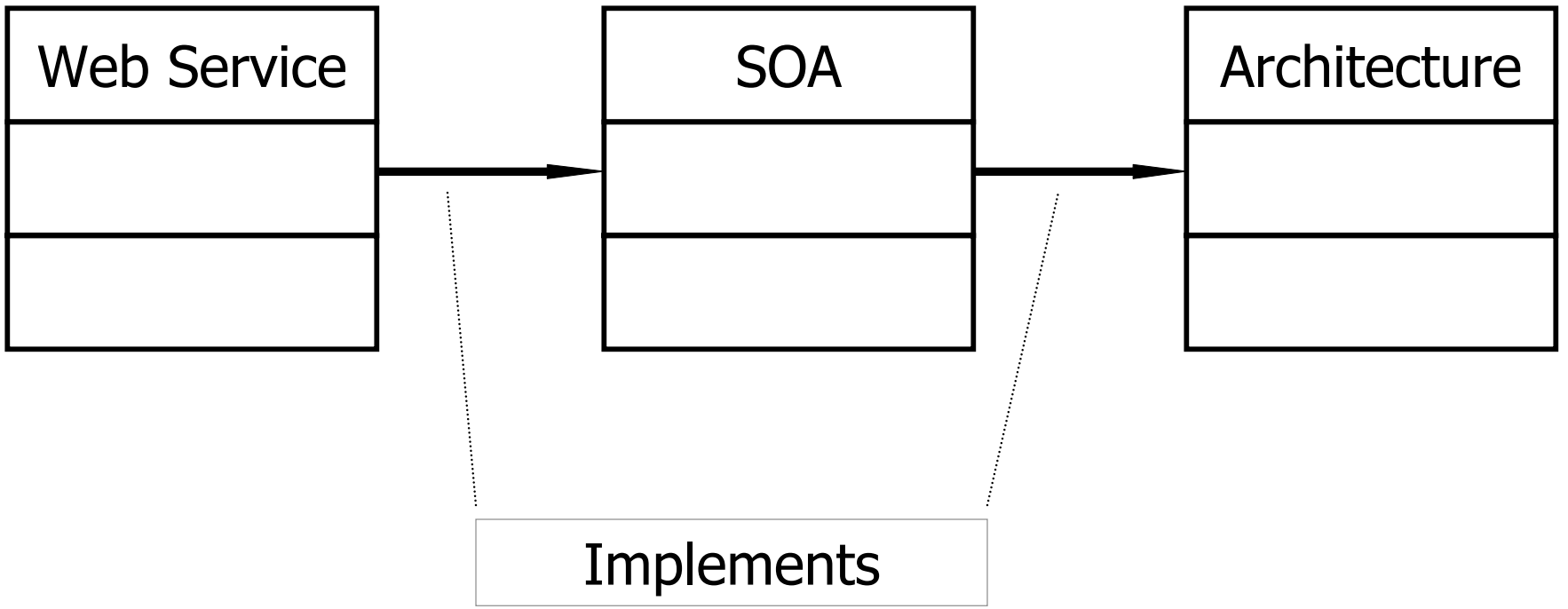
- Service Oriented Architecture (SOA) formally separates interface & implementation
  - Service-consumer views service as an endpoint
  - Supports contract with defined request & response msgs
- SOA dictates a different paradigm:
  - Find, Bind, and Execute (FBE)
  - Web Services take this one step further and define a formal mechanism for the FBE process
- SOA expresses the definition of loosely coupled (software) business service components/modules that map a business process or problem space



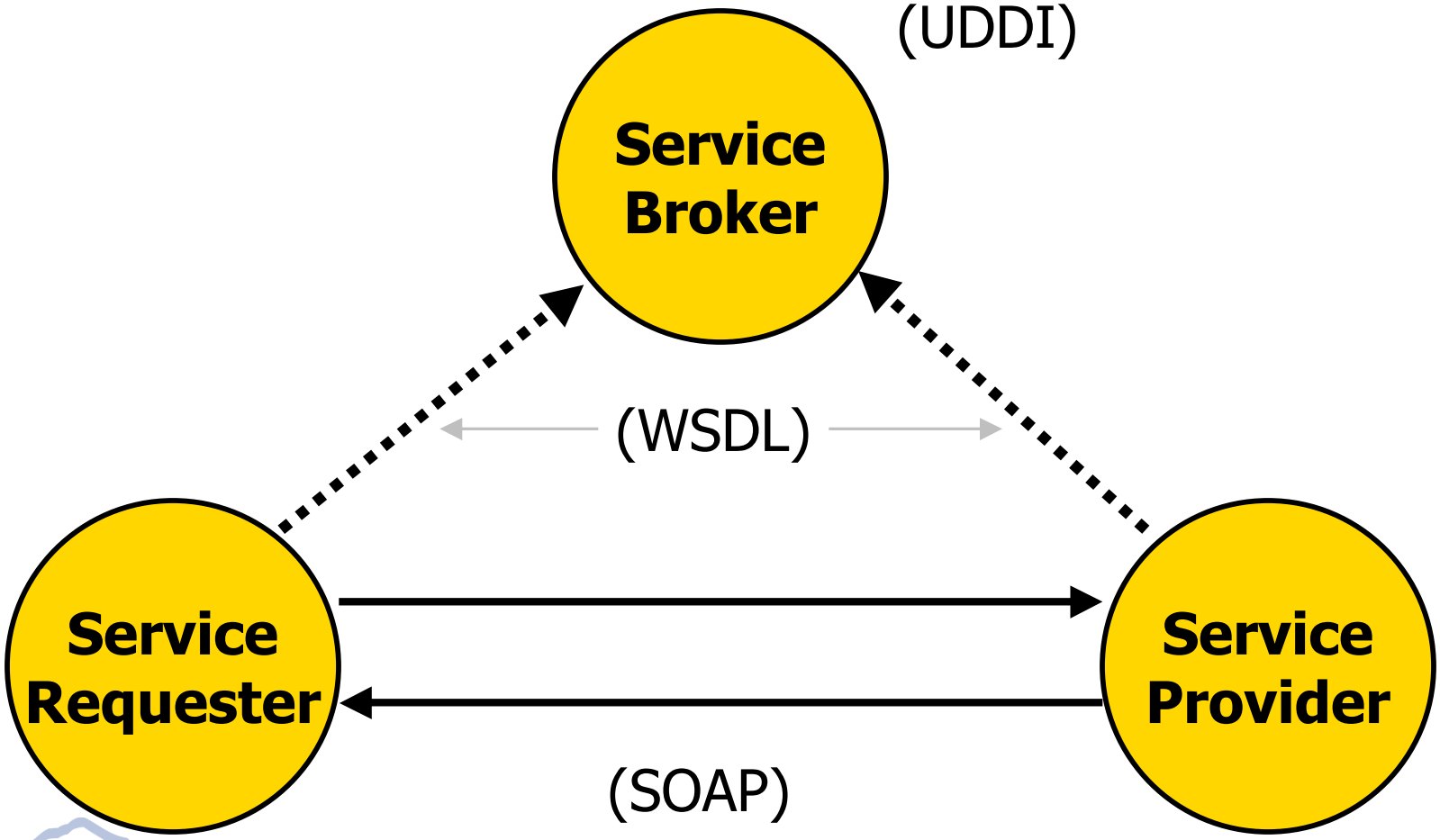
On the Same Page

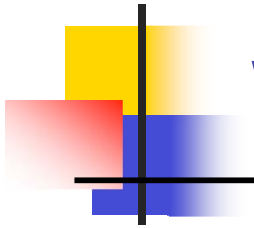
- At a high level, a service is software that conforms to specific protocols & standards
- More specifically, a service is a stateless "component"
  - It accepts a request &…
    - …returns 1 to n responses
    - through a set of defined interfaces
- "Architecture" defines how services interact and are sequenced (orchestration)

Architectures



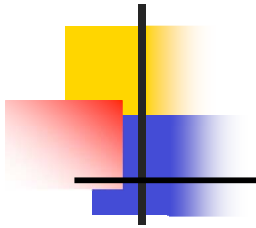
The SOA Roadmap





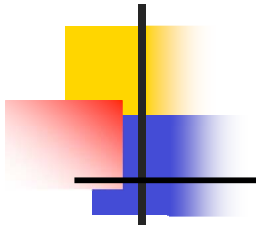
Web Services Protocol Stack

- **Service Transport**: transports messages between apps
  - HTTP, SMTP, FTP, & Blocks Extensible Exchange Protocol (BEEP).
- **XML Messaging**: Encodes messages in a common format
  - XML-RPC, SOAP and REST.
- **Service Description**: Describes service's public interface
  - WSDL
- **Service Discovery**: Centralizes services into a common registry/directory
  - UDDI
- The Web service protocol stack also includes a whole range of recent protocols: WSFL, SOAP-DSIG and more



Reasons for SaaS

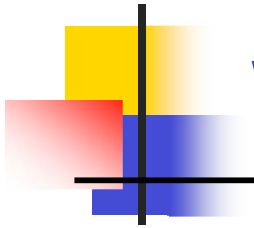
- SaaS == Software as a Service
- You might not have to develop it, if it is available as a service (on-demand or subscription-based)
  - Reduced startup costs
  - 21st Century version of time-sharing
  - Reduced upgrade costs
- Additional revenue source
  - Piracy prevention???



Reasons for SaaS

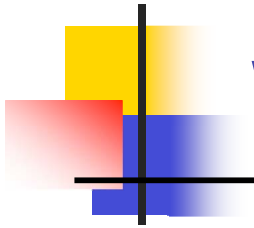
- Capitalize on diverse resources including core competencies
  - It's about business, not technology
- Evolve to meet customer needs faster
  - Business needs, not technical
- Easier to sell
- Easier to install
- Easier to integrate
- Cheaper to build

Compared to a classic application



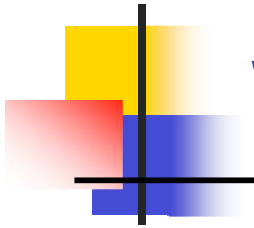
Web Services Advantages

- Web services provide interoperability between various software applications running on disparate platforms.
  - Loose coupling allows either end to change
- Uses open standards & protocols.
  - Protocols and data formats are text-based where possible, making it easy for developers to comprehend.
- Keep pace with global competition



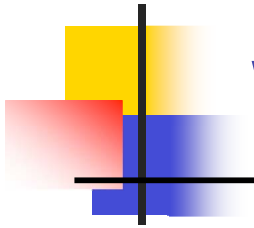
Web Services Advantages

- Web services **should** easily allow software and services from different companies and locations to be combined to provide an integrated service.
- Web services allow the reuse of services and components within an infrastructure.
- Using HTTP, Web services can tunnel through many firewalls
- Immutable interfaces



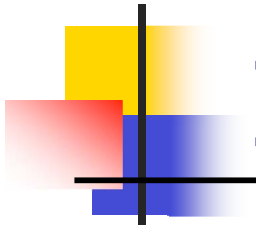
Web Services Disadvantages

- Learning curve associated with the standards
- Coding (and architecture) learning curve
  - Depending upon the tool set: code complexity.
- Availability (no site is 100%)
- Using HTTP, Web services can tunnel through many firewalls
  - Rules intended to block or audit communication between programs on either side of the firewall.
- Immutable interfaces



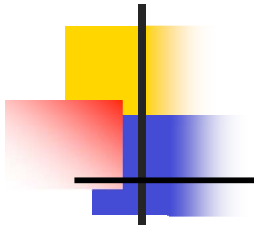
Web Services Disadvantages

- Poor performance compared to other distributed computing approaches (RMI, CORBA, or DCOM).
  - Common trade-off with text-based formats.
  - Note: Design goals for XML do not explicitly include parsing efficiency.
- Some of the standards aren't standards, yet
- Standards for transactions don’t exist…
  - …or still in infancy compared to mature distributed computing open standards (CORBA).



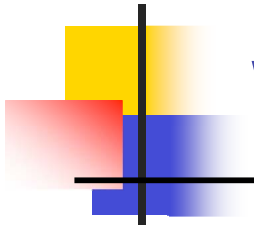
Ideas

- Federated identity across services
- Types of services
  - Self-contained (*e.g.*, Amazon) or for internal use only
  - Multi-vendor interoperation
  - Standards
- Web services security in each environment
- Services are about the business
- BPEL (and BPEL4WS) is your friend
  - What about BPMN and BPEL for people: BPEL4People
- Just a thought…
  - What happens if we don't do/use SOA?



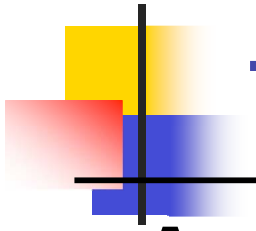
How Do You Know It Will Work?

- Ask critical questions in 5 areas
  - Architecture/design
  - Other technical
  - Organization
  - Market
  - Regulatory
- Developing and deploying services takes time & coordinated effort.
  - Governance
- Your situation might call for weighting



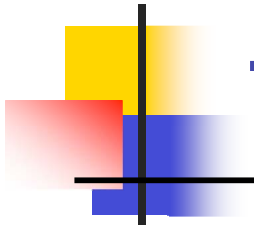
Will It Work: Considerations

- Define risk for each of 5 areas (description)
- How likely (low med high – lmh)
- How bad would it be (lmh)
- What would trigger it
- What would happen if…
- Metric to determine if & how you will know…
- What are you going to do about it?



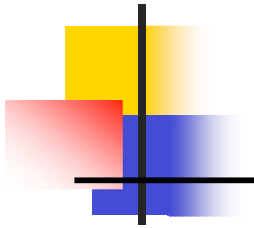
The 5 Area Questions

- **Architecture/Design**: What factors prevent the architecture from meeting specific goals, or expectations? (performance?) (targets?)
- **Other technical**: If architecture/design works, what other technical issues could prevent it from working?
- **Organization**: Which people (or department) could obstruct, slow, or kill the project?
- **Market**: What could competitors do that reduce effectiveness of the result?
- **Regulatory**: What changes in law, organizational guidelines or mandates could adversely impact the project?



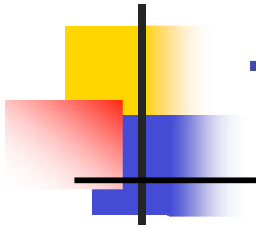
The Right Questions

- How to reduce integration costs, increase both reuse and business agility?
- What standards will you use?
  - How will you select them?
- How will you assure adherence to standards?
  - Corporate and regulatory compliance?
- How will you discover services…
  - …and assure they are re-used?
  - What services are already available (inside or…)?



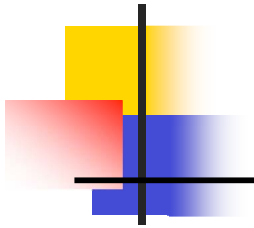
More Right Questions

- What do you do about SLAs?
  - How do you manage/negotiate them?
- H2 connect/integrate internal users?
  - External?
  - Is "how quick" an issue – if so, how…?
- Who authorizes "publish" for internal use?
  - External?
  - …and how – what is the process?
- How will we deal with "system" governance?



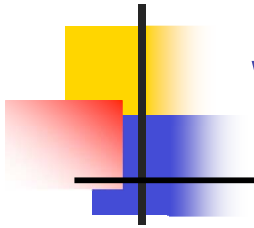
The Ultimate Question(s)

- How do/will you measure success?
  - On-time
  - Under budget or profitable
  - Number of people using it
  - Team was agile
  - Team learned what works and what doesn't
  - Serves as a good bad example
  - does it map business need or business value
  - Better ROI, ROC, or competitive position
  - ???



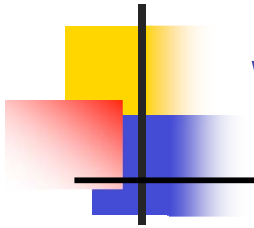
SOA Deployment Considerations

- Impacts of/on corporate culture
- Business justification required
- Regulatory compliance == SOA opportunity
- SOA designed to operate in heterogeneous federated environments
  - Blur distinction between network & software from the perspective of functionality
- Security issues…



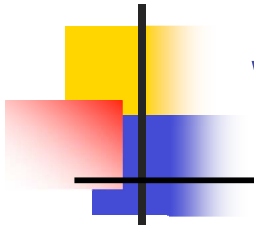
Web Services and Security

- Requests (can) pass through gateways that either aggregate or split messages
  - Add multiple points of identity scrutiny and message integrity
    - Possible to spoof identify without proper safeguards
- Most WS security focuses on authenticate requestor, validate message integrity, and provide security policy headers
- Is this enough?



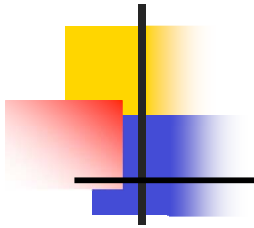
Web Services and Security

- The previous issues are resolvable PROVIDED you don't assume one size fits all
  - SSL or XML signature
  - PKI (could bog down in high volume)
- Layered defenses
  - Outer firewall for perimeter, inner gateway to decrypt and authenticate messages & sender
  - Check policy – allowable request from source
  - Virus/Trojan/worm protection



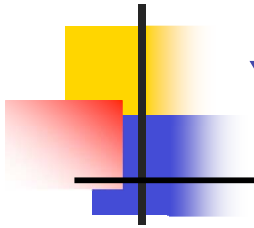
Web Services and Security

- Business context
  - Trusted source
  - Number of endpoints increases complexity
- Unless you have access to a private network (WAM!net?) then you might not want to offer sensitive WS in high volume, today.
- Every standards iteration gets better
  - WS-I Basic Profile
  - SAML (Security Assertion Markup Language)
  - Still need standards for trust exchange



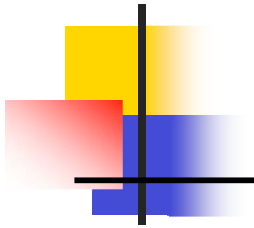
Follow the Yellow Brick Road

- The goal is a framework that makes future applications faster, easier, cheaper
- Open the doors to reuse of services and data across…
  - …lines of business
  - …B2B and B2C
- Provides information sharing & collaboration
- Single sign-on



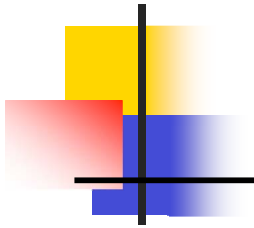
Yellow Brick Road

- Determine how to wrapper existing applications to work in & within SOA
  - Map services to data silos
- Separate data and logic – but it's not about CRUD
- Aggregation *via* orchestration
  - Not one-off, but façade
- Eventually, services need to be extensive
- SOA allows/provides enterprise governance



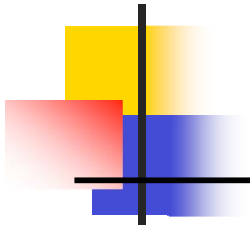
Service Architectures as Patterns

- Patterns have descriptive conditions, entry exit conditions, *etc*.
  - What service patterns exist in your organization?
- Service architectures as APIs – define the parameters of the service and what it does
  - If you can describe in WSDL…
- Re-use isn't free, it takes work to discover what is there and how to use it.
  - Search for "it"



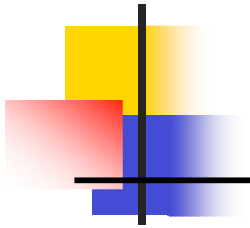
Not the Best Approach…

- NetWeaver rollout, SAP announced 10,000 services for 1,000 applications in 30 industry groups?
  - Is this a plus or still a legacy architecture wrapped up to look like SOA?
- If architectures define structure, relationships and patterns, where is the structure in 10,000 services…?
  - Frankenstein's Monster or…



Things to Consider

- WS still evolving, so are best practices
- Service definitions can be volatile
  - Needs to be a change management process without propagating volatility
- Consider WSDL, UDDI, & SOAP
  - SOAP and WSDL have inconsistencies
  - Vendor implementations differ
  - Interoperability not guaranteed
- Both Java and .NET offer some protection and are getting better.



Final Thoughts…

- KISS still works!
- It's Service-oriented, not tech-oriented
  - Service linked to business objectives and business processes
- SOA is not just about software…
  - It's architecture: everything that surrounds s/w
    - New infrastructure layer(s) address SOA requirements
    - Hardware accelerators and security for XML
  - Business analysts: what can SOA do for me?
    - This is part of the key to change!

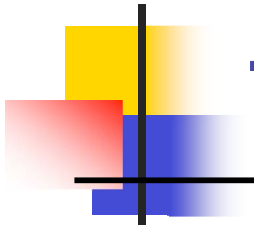
Questions ? ? ?

If you don't ask, who will?

There aren't any dumb questions.

If not now, when?

The only dumb question is the one not asked!



Thank You

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