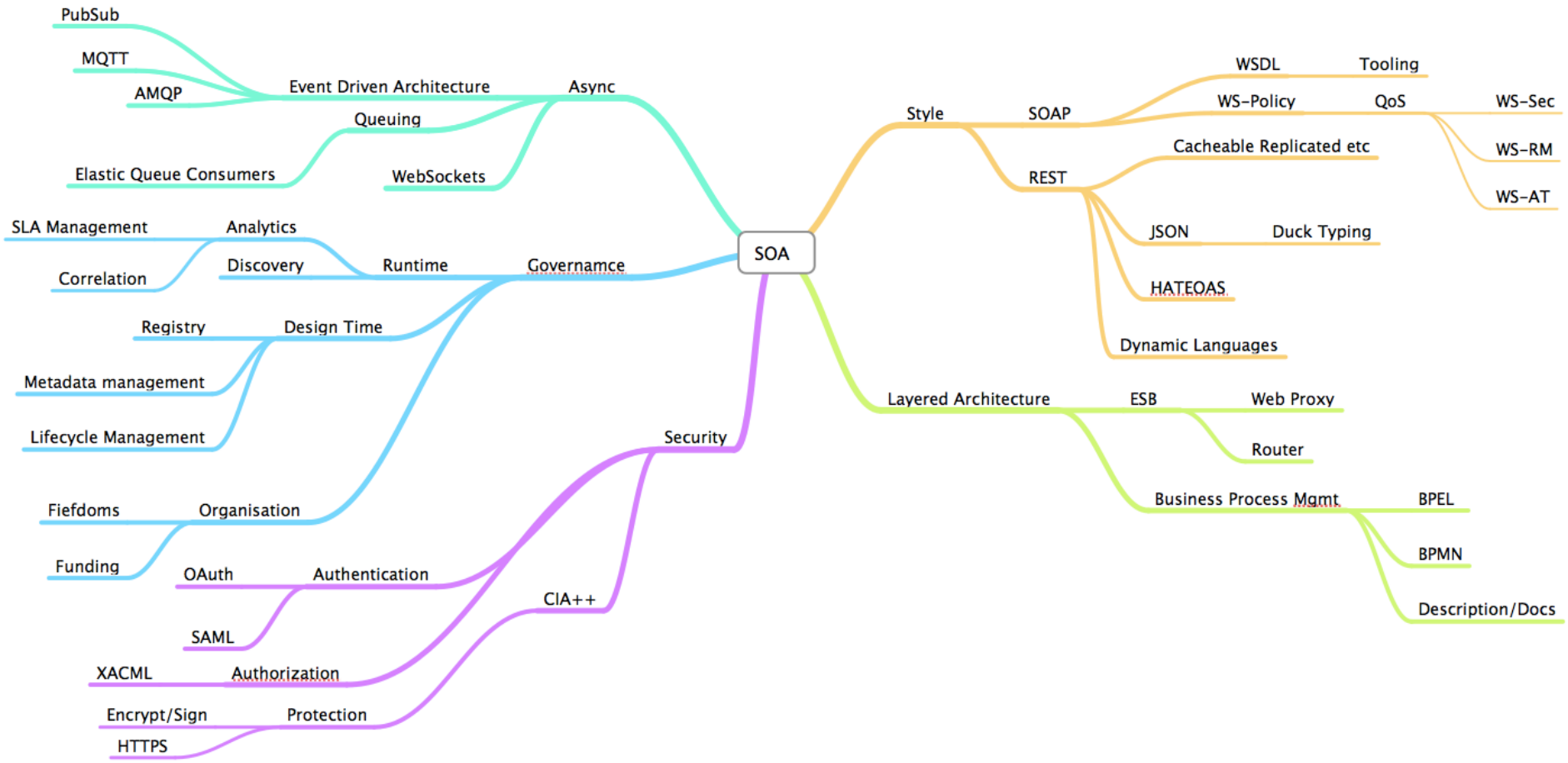
Conclusions

Oxford University

Software Engineering Programme

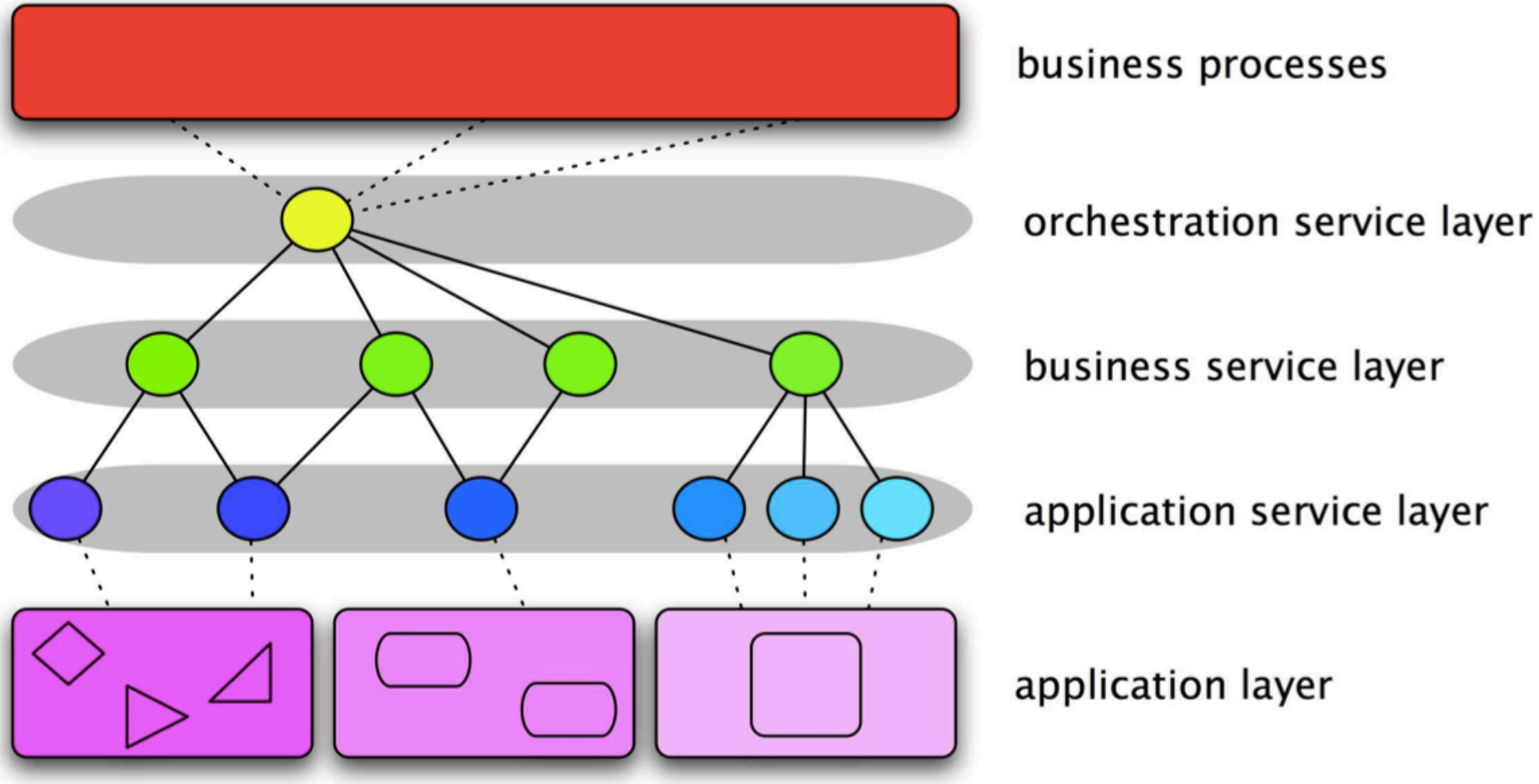
Sep 2015

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/



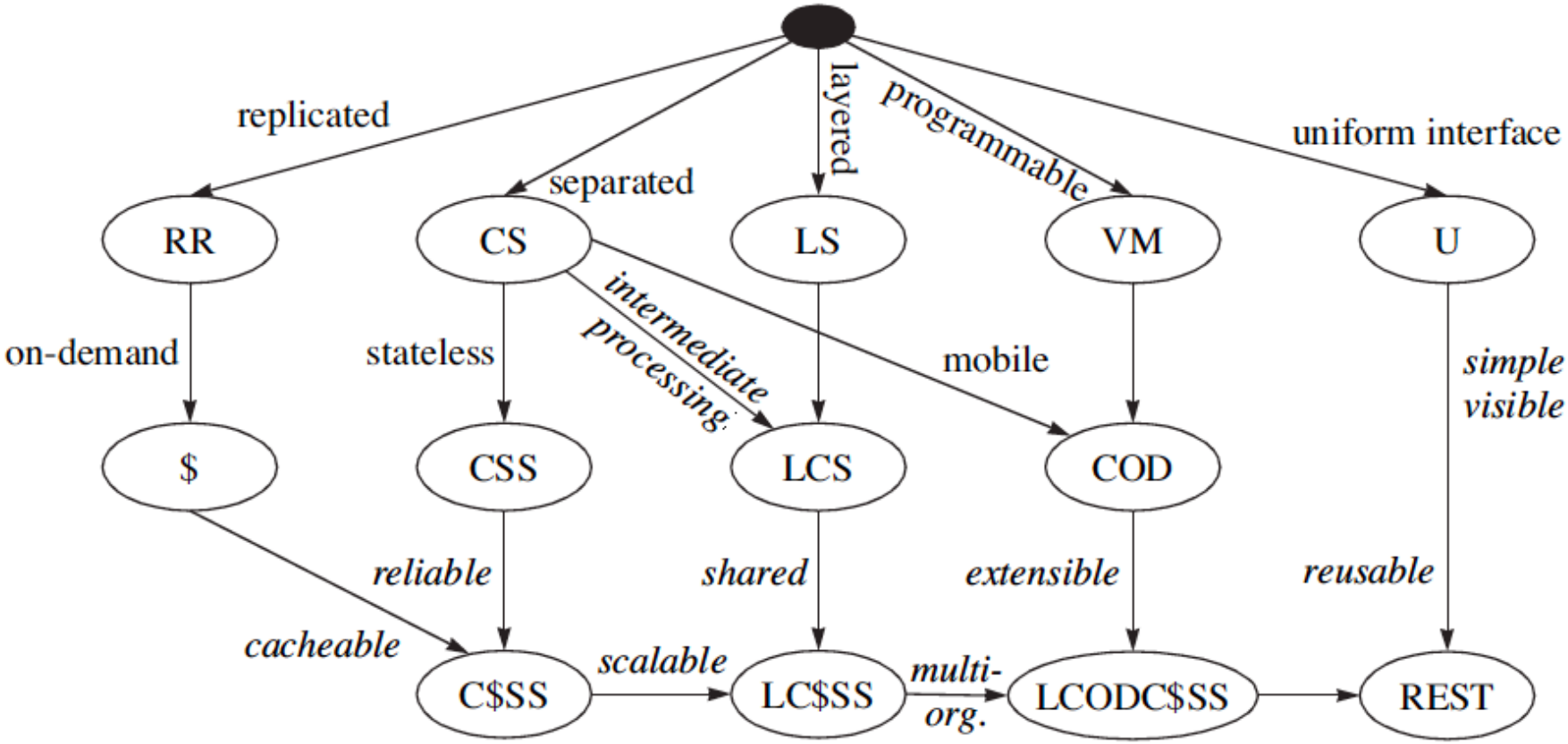
© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

SOA



© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

REST



© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

HATEOAS

```
201 Created
Location: http://starbucks.example.org/order/1234
Content-Type: application/xml
Content-Length: ...

<order xmlns="http://starbucks.example.org/">
  <drink>latte</drink>
  <cost>3.00</cost>
  <next xmlns="http://example.org/state-machine"
    rel="http://starbucks.example.org/payment"
    uri="https://starbucks.example.com/payment/order/1234"
    type="application/xml"/>
</order>
```

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

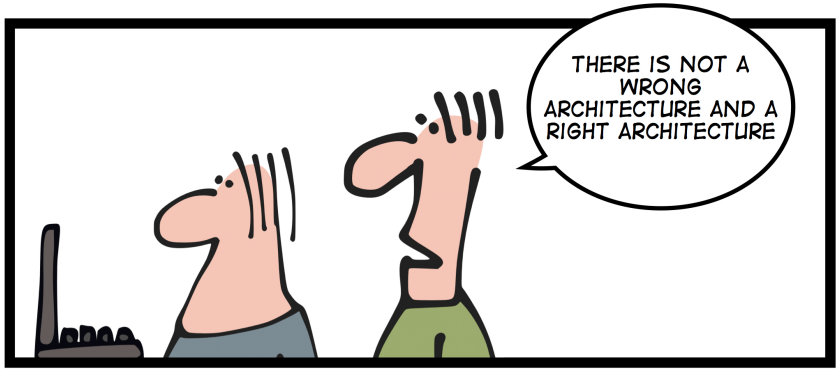
SOAP and WS-*

- Composable
  - WS-Security, ReliableMessaging, etc
- Transport independent
- Tooling
- Schemas and WSDLs
  - Governance

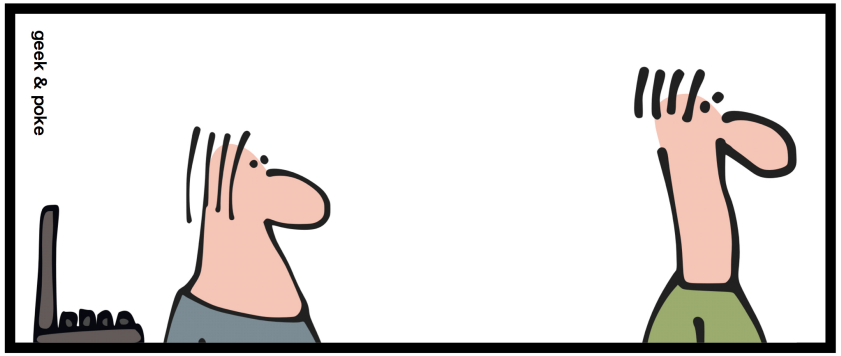
© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

SOAP vs REST?

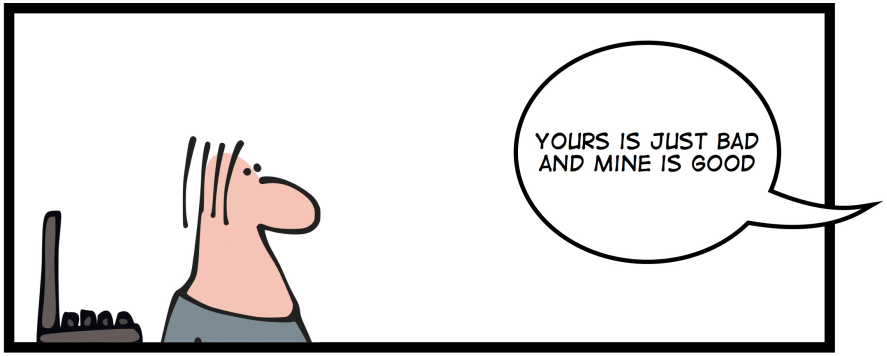
© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/



IT ARCHITECTURE IS NOT ALWAYS SIMPLE



FORTUNATELY...



... MOST OF THE TIME IT IS

© Paul Fremantle
Licensed under the
See http://creative
uthor(s).

Design Governance

- Interfacing SOA into the build/test/ production
- Encouraging Service Re-Use
- Lifecycle and Dependency Management
- Notification

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

Runtime Governance

- Monitoring
- SLA management
- Correlation of activities into flows
- How do you maintain a running application when it depends on 10s, 100s or 1000s of remote services?

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

Services vs APIs

- Focus on the consumer
  - Self-signup and subscription
  - Tracking and usage
  - Developer portals and ease-of-use
  - Monetization

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

ESBs and Intermediaries

- ESB Patterns
  - Façade
  - Hub
  - Federated
  - Monitoring point
  - Transformation
- ESB vs Registry or both?

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

Orchestration and Composition

- BPMN, BPEL
- Executable Documentation?
- Visibility and Monitoring

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

Design Considerations

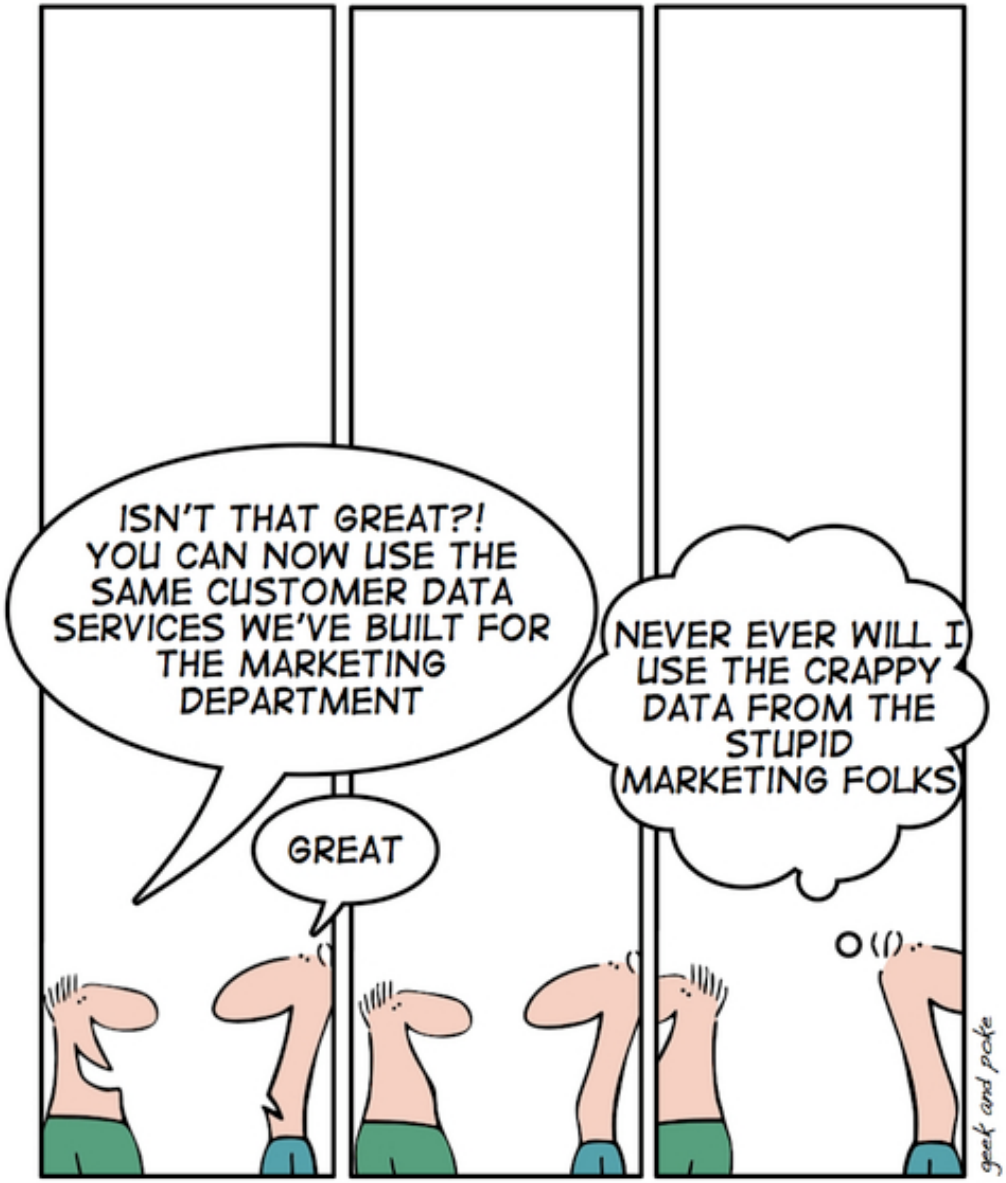
- Granularity of Services
  - Microservices
  - Monolith First? Microservice First?
- Ensuring that SOA is being used for a good reason:
  - Scale
  - Organizational boundaries
  - Evolvability
- Where to draw the boundaries?
  - Between services
  - Between ESB and BPM
  - Between organizations
- Are your layers right?

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

Organizational issues

- Funding models
- Fiefdoms
- Ecosystems / Value Webs
- Shadow IT / Cloud

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/



THE BENEFITS OF A SOA

© Paul Fremantle 2 uthor(s).
Licensed under the
See http://creative

SOA and Cloud

- SOA is loose-coupling between applications and applications
- Cloud is loose-coupling between applications and infrastructure

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

What else?

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/

Thanks!

paul@fremantle.org
paul@wso2.com
@pzfreo
LinkedIn/Facebook/Slideshare/Github

© Paul Fremantle 2012. Portions © Jeremy Gibbons 2010, © WSO2 2005-2012 used with permission of the author(s).
Licensed under the Creative Commons 3.0 BY-SA (Attribution-Sharealike) license.
See http://creativecommons.org/licenses/by-sa/3.0/