

# Agility in eBay

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Deepak Nadig  
Distinguished Application Architect



# The eBay context

## eBay manages ...

- Over 97 million active users
- Over 2 Billion photos

- eBay users worldwide trade more than \$2000 worth of goods every second
- eBay averages well over 4 billion page views per day
- At any given time, there are over 250 million items for sale on the site in more than 50,000 categories
- eBay stores over 5 Petabytes of data – over 500 times the size of the Library of Congress!
- eBay analytics processes over 80 Petabytes of data on any day
- The eBay platform handles 40 billion API calls per month

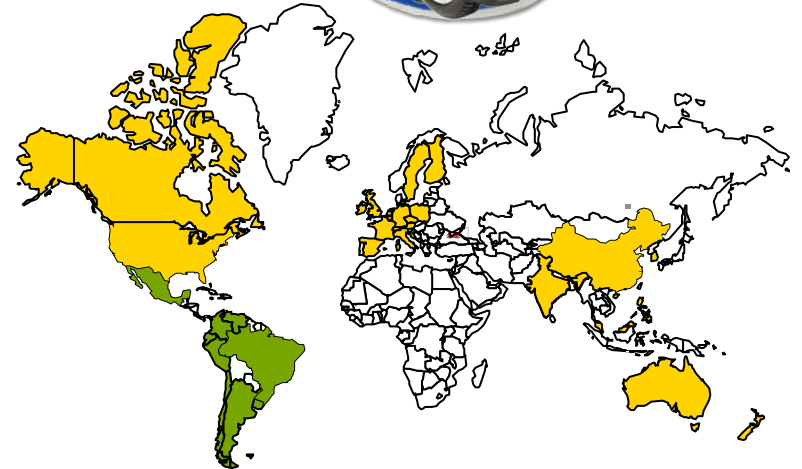
## In a dynamic environment

- 300+ features per quarter
- We roll 100,000+ lines of code every two weeks

In 40 countries, in 20 languages.

>100 Billion SQL executions/day!

A sporting SUV is sold every 25 minutes



# Defining Agility



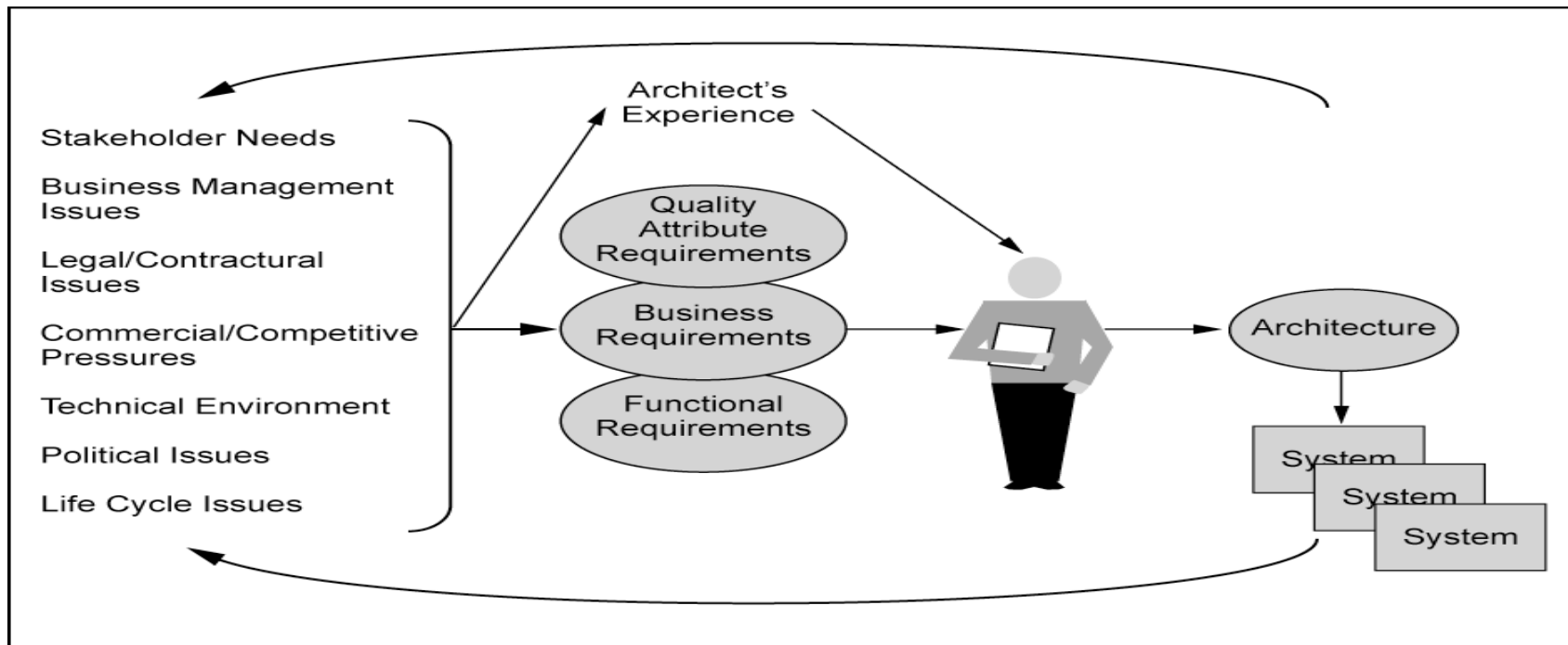
The capability of **rapidly** and **cost efficiently adapting to changes**

– Wikipedia

The ability of an organization to sense **environmental change** and to **respond efficiently** and **effectively** to it

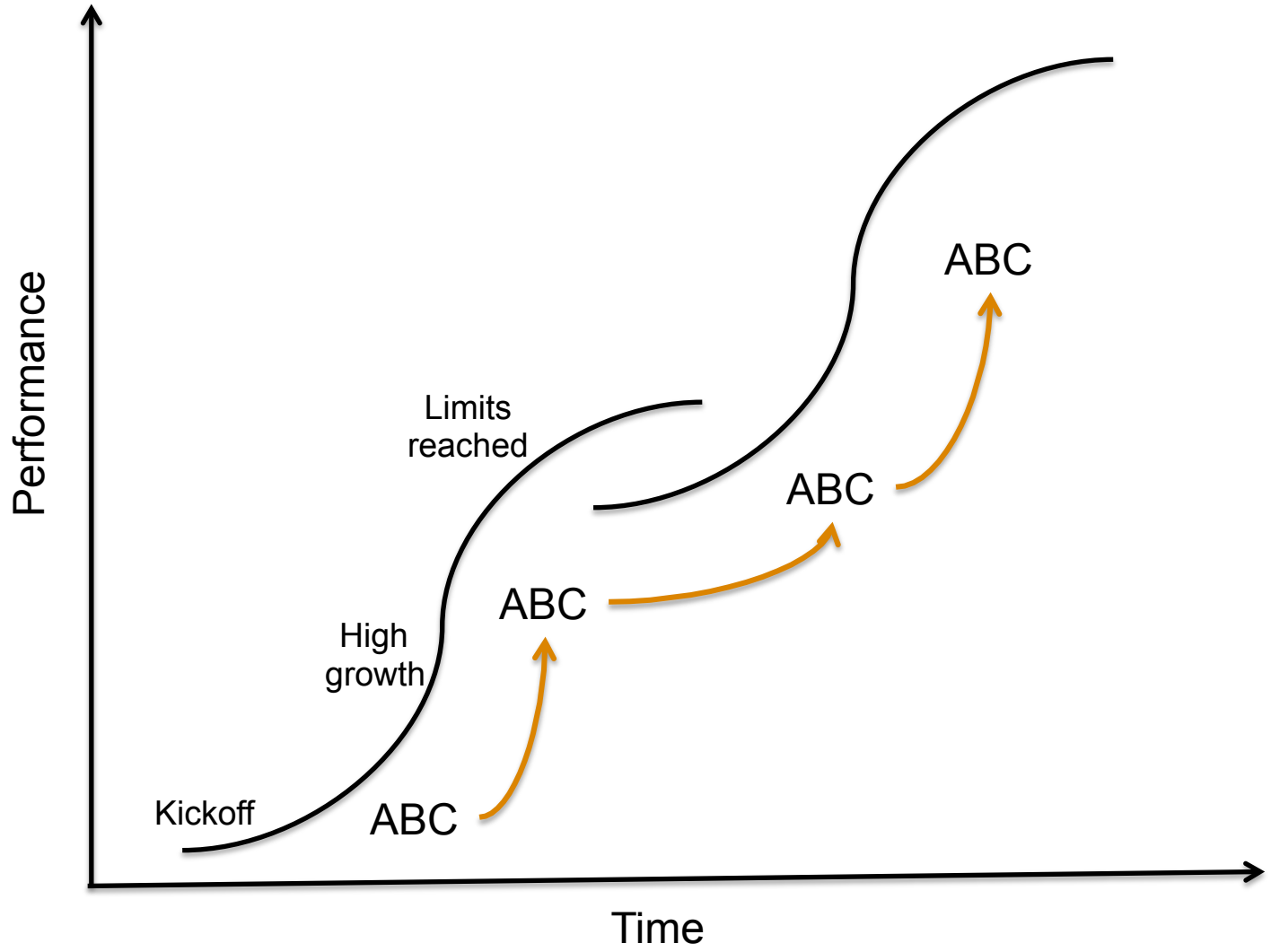
– Gartner

# Architecture Business Cycle (ABC)

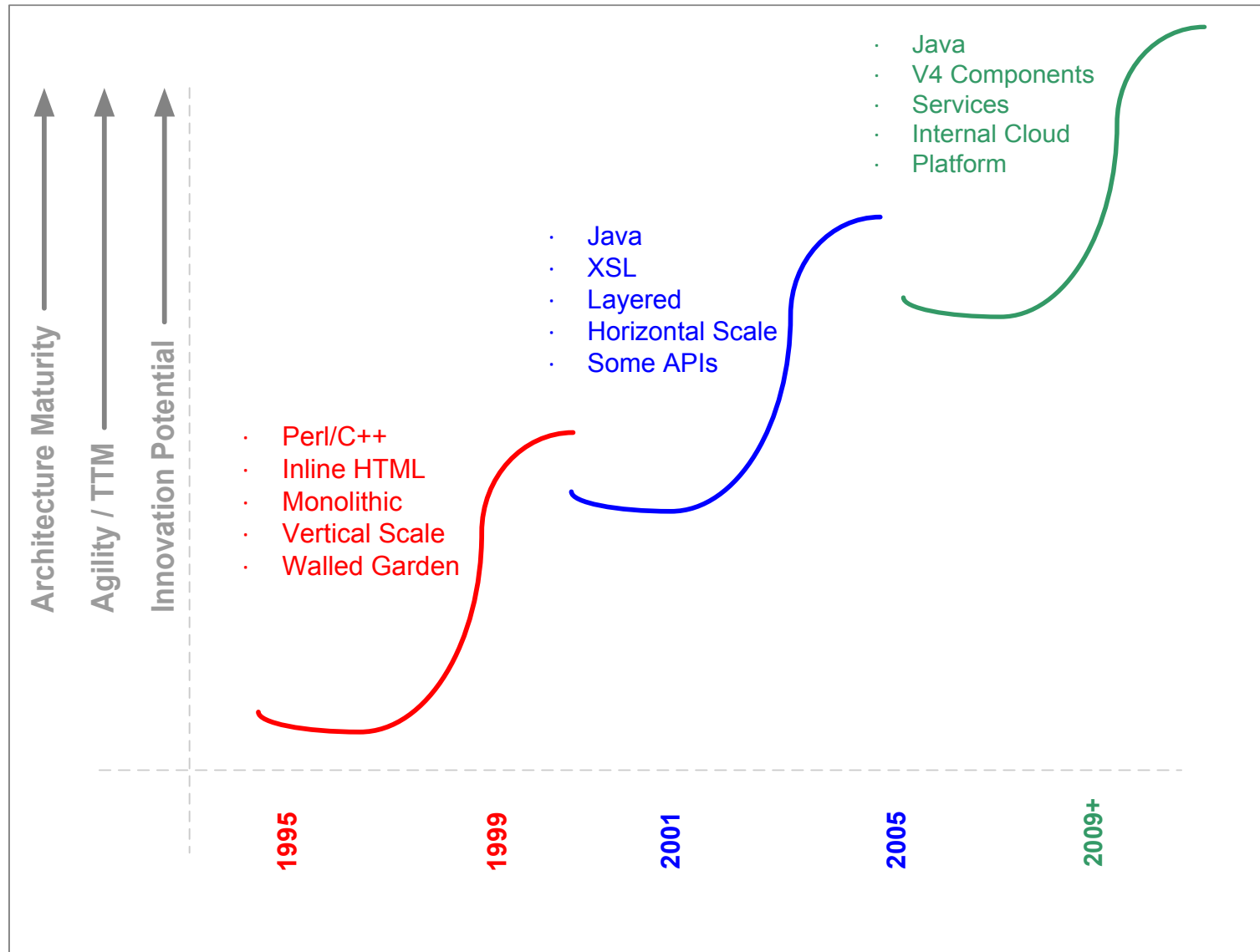


Architecture = (Business, Application, Data, Technology)

# S-curve



# eBay Architecture - Road to here



# Business Drivers



Mobile



Local



Digital



Social



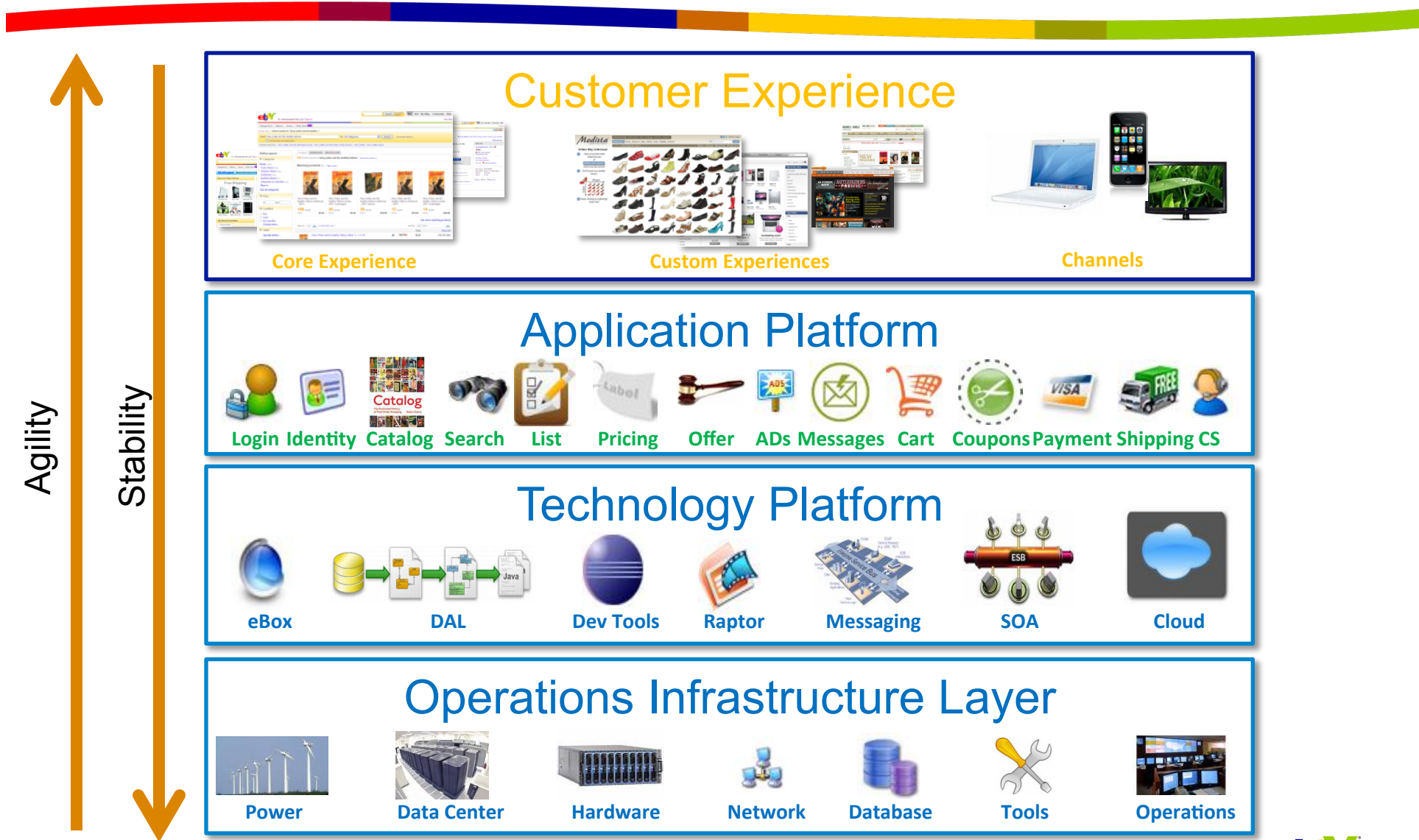
# Business Imperative



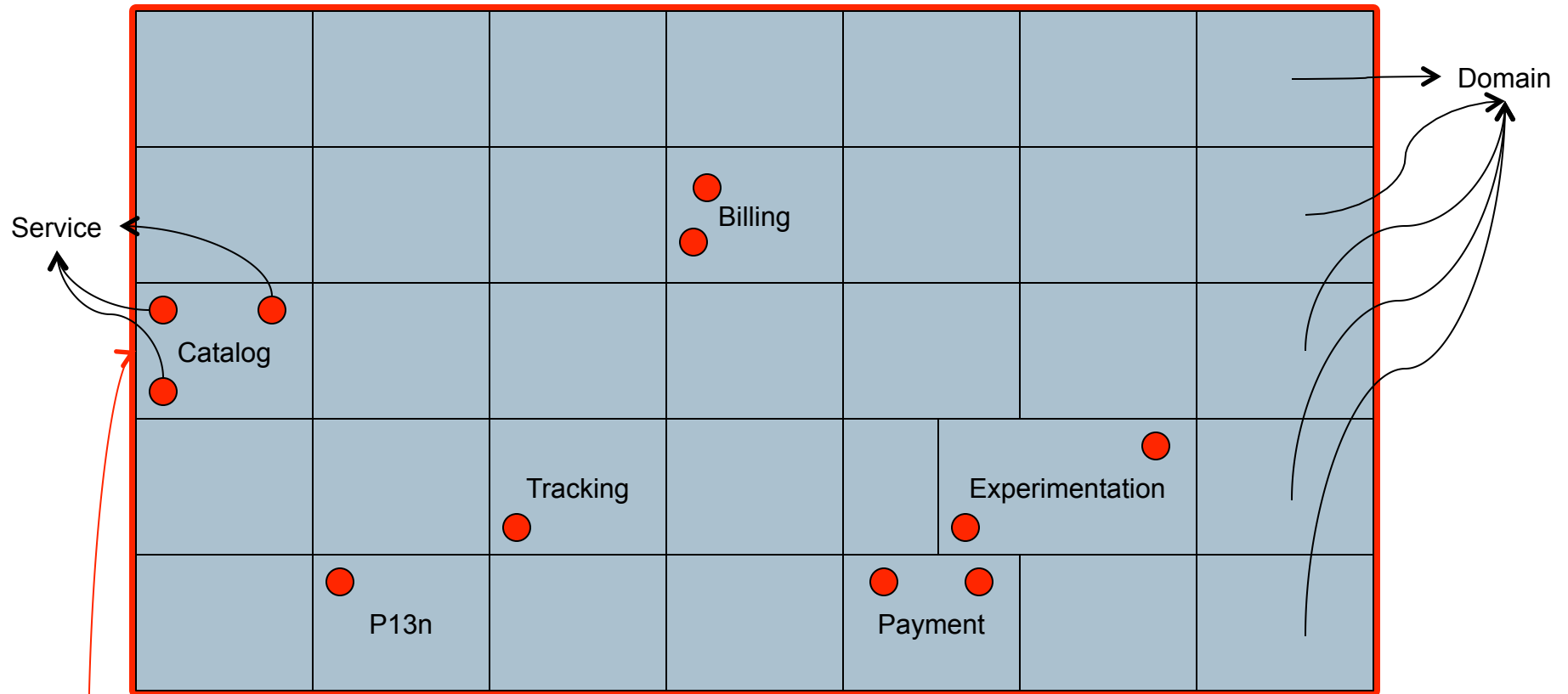
How can I innovate faster than ...



# Architecture Vision



# Partitioning into domains



Application Platform

## Ideal decomposition

Intersection of any two domains = 0

Sum of all domains = eBay

# Quality Attribute Tradeoffs



- Quality attributes = Flexibility, Performance, Availability, ...
- Ranking by tier
- Ranking by domains

... premature optimization is the root of all evil ...

- Donald Knuth

# Increasing agility in eBay



1. Partition into tiers, domains and services
2. Identify and eliminate any coupling between them
3. Decentralize accountability
4. Enable these domains to operate and iterate quickly
5. Make it easy to use and compose services

# Increasing agility in eBay



- Process
- People/organization
- Technology

# Process



- Centralized → Decentralized
- Waterfall → Scrum
- Self-service & automation
- Data driven through analytics and experimentation

# People/Organization



- Decentralized accountability
- Matrix → Dedicated teams
- Reduced dependencies
- Change management

Remember Conway's law

# Technology



- Application Platform
- Configurable web applications
- More open technologies
  
- Analytics, Experimentation platforms
  
- Continuous Integration
- Cloud, Automation
- Deployment latency



## e.g. Security as agility increases



Decentralize risk management



Security standards built into the platform



Developer education




Self-service risk evaluation tools



Security consulting for high-risk scenarios

# Want to increase agility?

- 
1. Be clear on the drivers
  2. Define agility constraints
  3. Partition, Decentralize, Automate
  4. Start small. Be customer-driven
  5. Manage change (especially with talent)
  6. Remember the Architecture Business Cycle



**QUESTIONS?**