

Calculating Service Fitness in Service Networks

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Stockholm, November 23rd, 2009

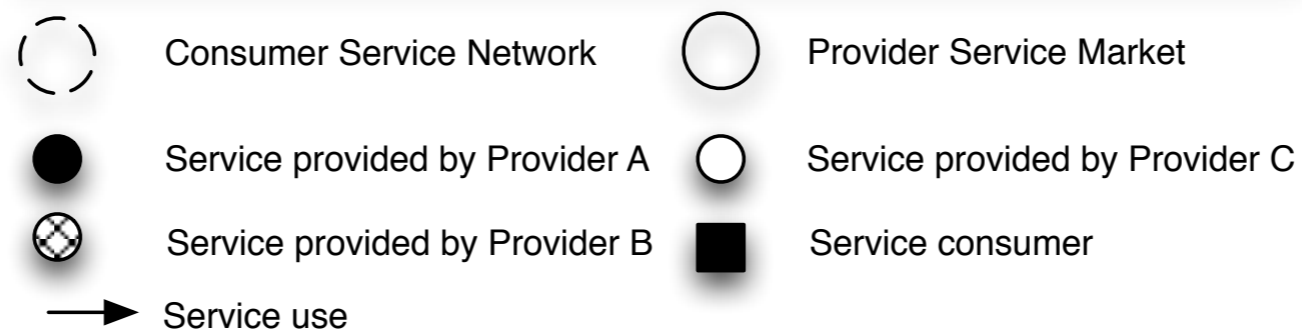
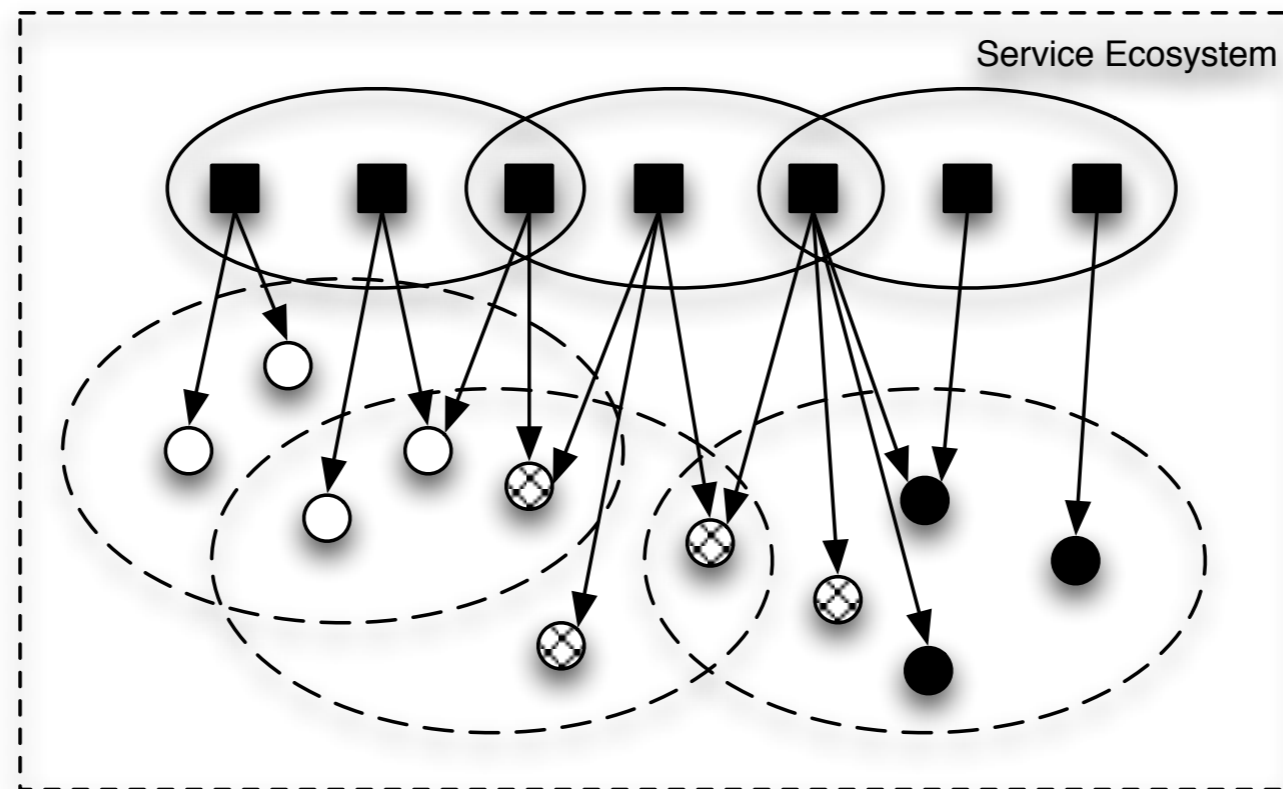
Overview

- Definitions
- Service Fitness
- Example
- Outlook

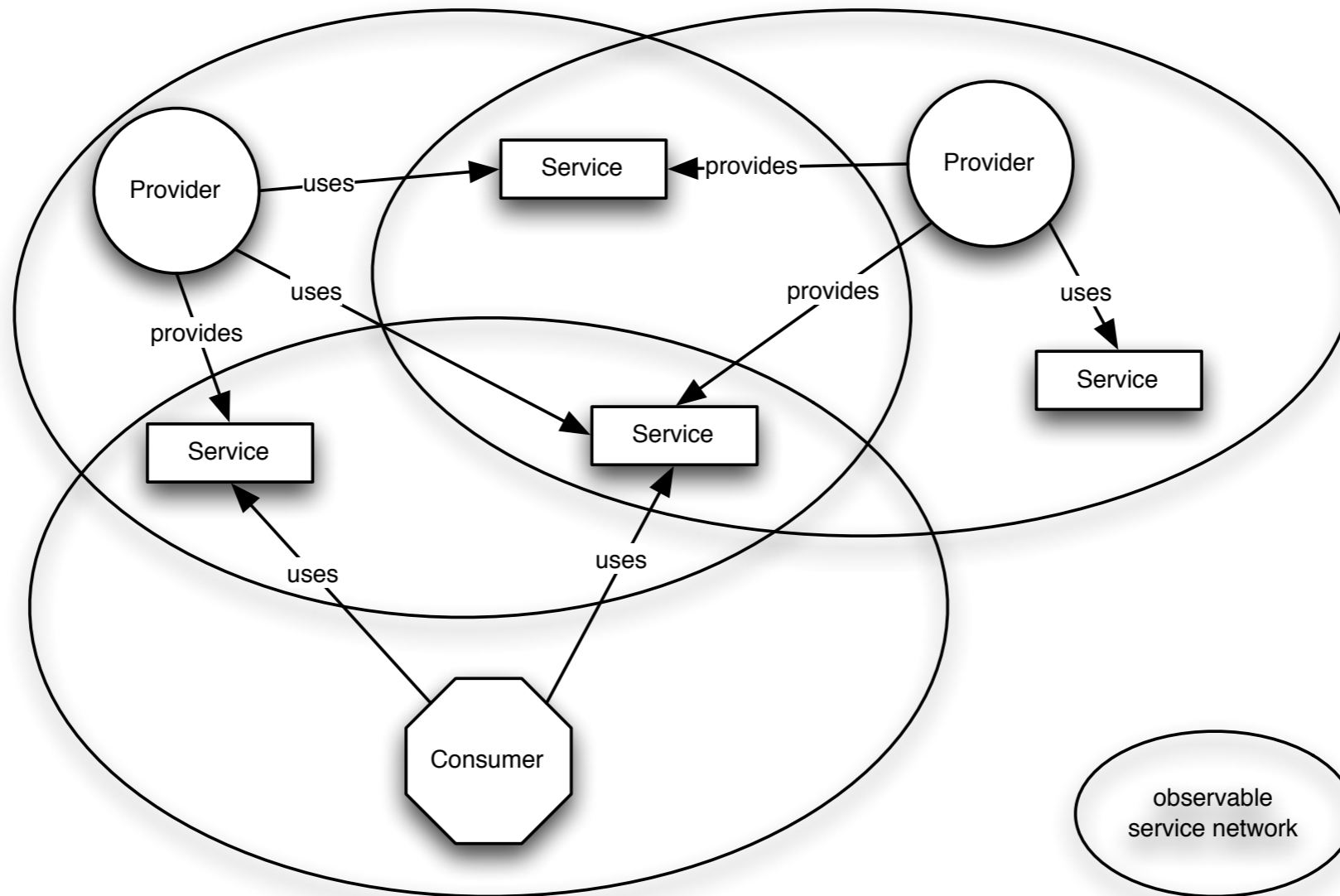
Definitions

- Service network = Pool of Services that is available to a service consumer
- Service ecosystem = Set of potentially overlapping Service networks of service provider and consumer
- Service market = Subset of the service ecosystem of a provider

Service Ecosystem



Observable Network



Service Fitness

- Measurement of fitness of a given Service
- Fraction of potential market vs. actual market
 - $\text{Fitness} = \text{Actual Use} / \text{Potential Use}$
- Fitness Corridor
 - upper, lower bounds for Service fitness

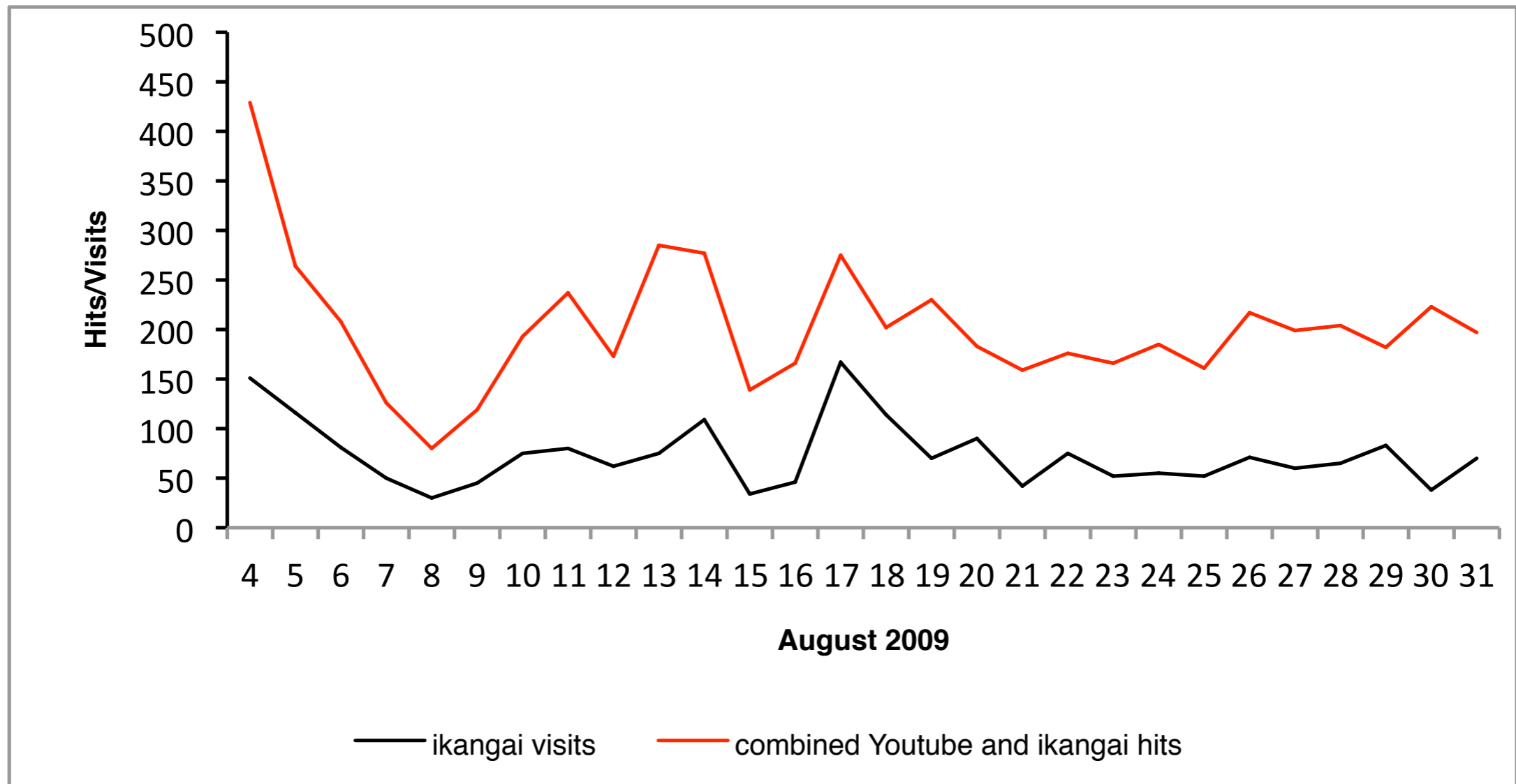
Service Fitness

- $f_m(\tau) = \sum (\text{Inv}(i) / (\sum \text{Req}(i)))$
- Time window τ = interval
- Observation interval m = Aggregation of time windows
- $\text{Inv}(i)$ = Service_{*i*} is invoked
- $\text{Req}(i)$ = Service_{*i*} description is requested

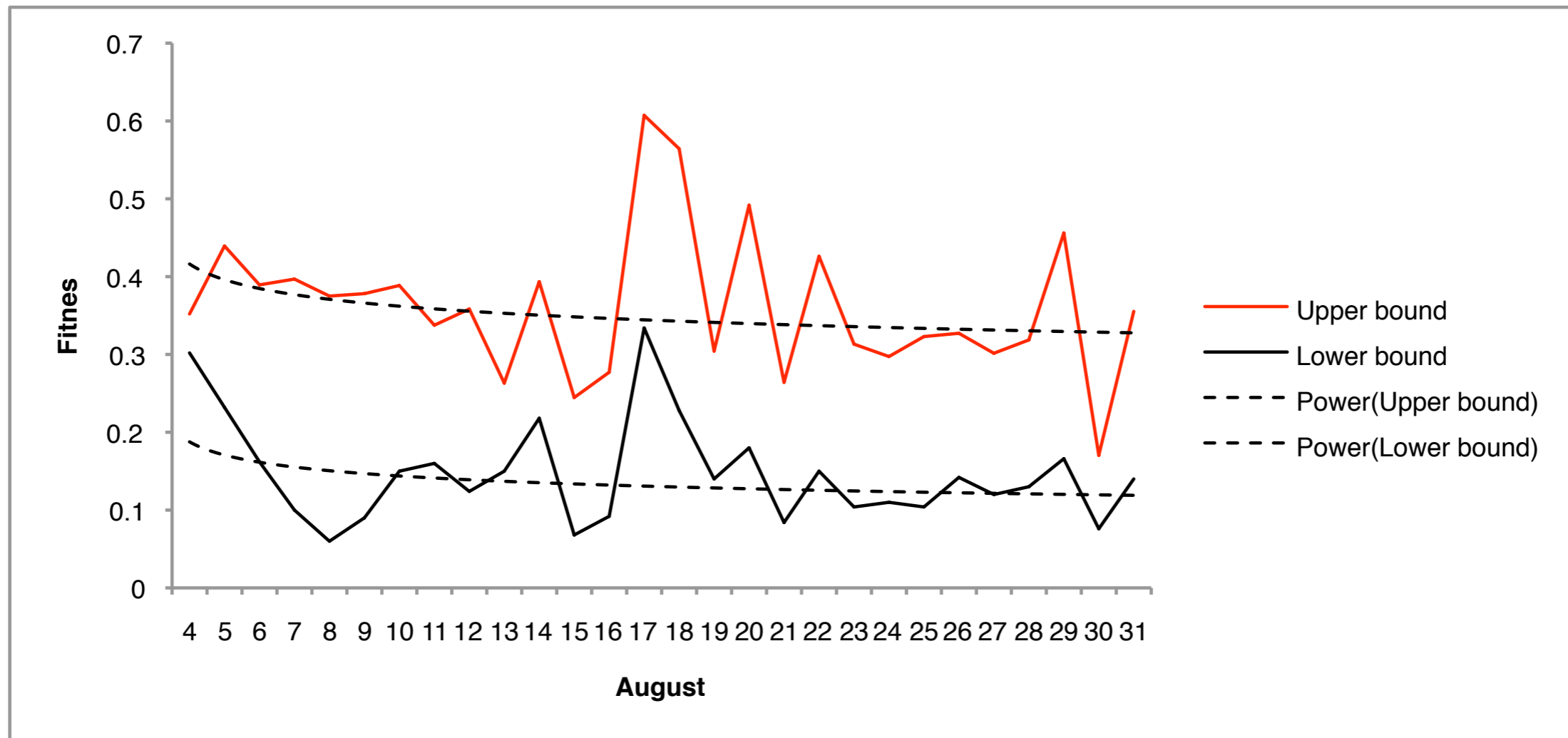
Fitness Corridor

- Lower bound
 - Estimated using techniques from market research (guessing ;-))
- Upper bound
 - Service Fitness formula
- Recalibration
 - Changes in the frequency of observations and or observation intervals

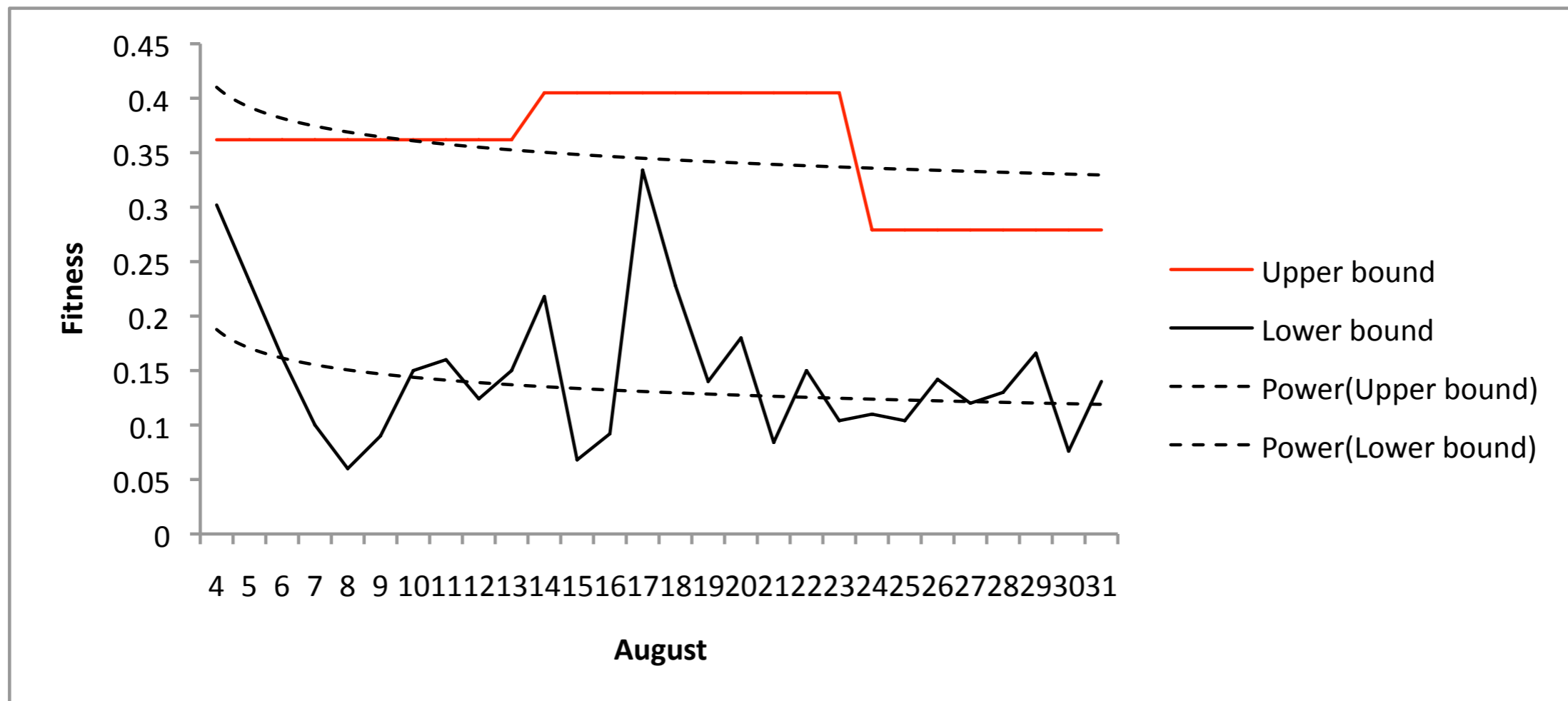
Example - www.ikangai.com



Example f_0



Example f_10



Summary

- Limited information of Service Provider
- Service Fitness as measurement
 - actual vs. potential use
 - lower and upper bounds

Outlook

- Elaboration of Service Fitness model
 - Service mashups/compositions?
 - System Dynamics

Thank you for your attention!

Questions?