



Rest here

# Goals

Not programming  
Architecture and Design



# REST

## REpresentational State Transfer



# Introduction to REST

Key drivers

Architectural properties

What is REST ?

Richardson Maturity Model



# Key drivers of REST

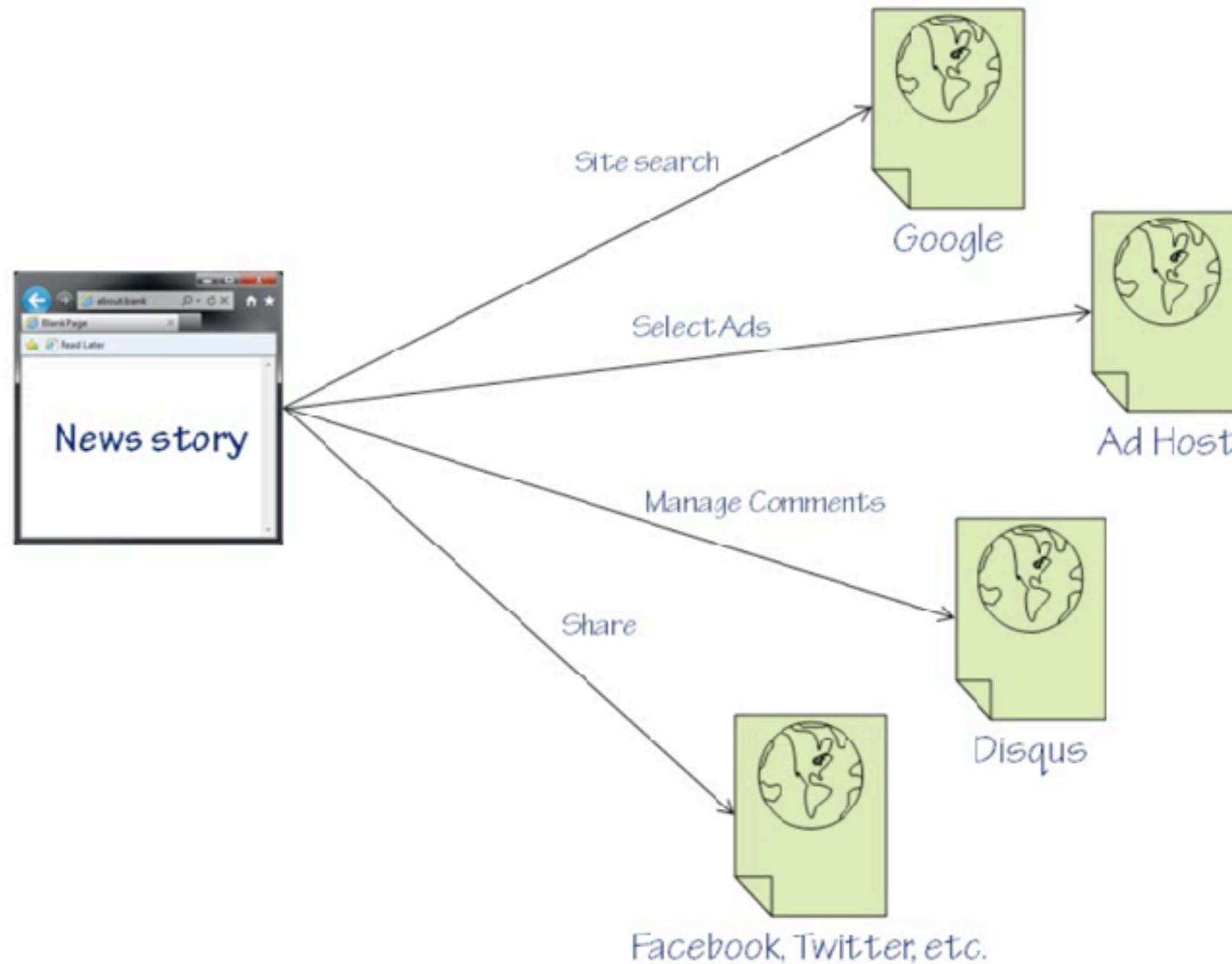
Heterogeneous Interoperability

Devices

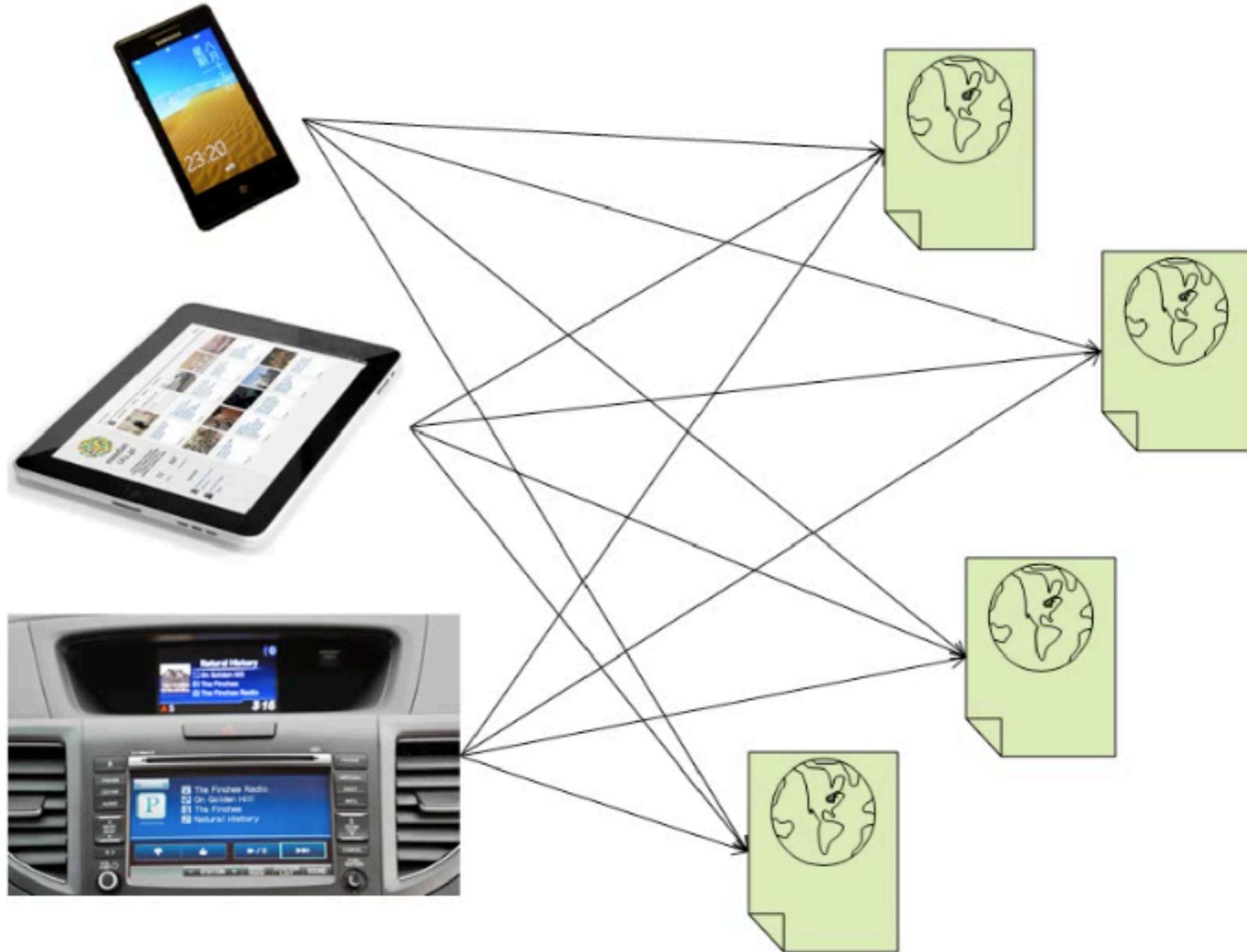
Cloud



# Heterogeneous Interoperability



# Devices

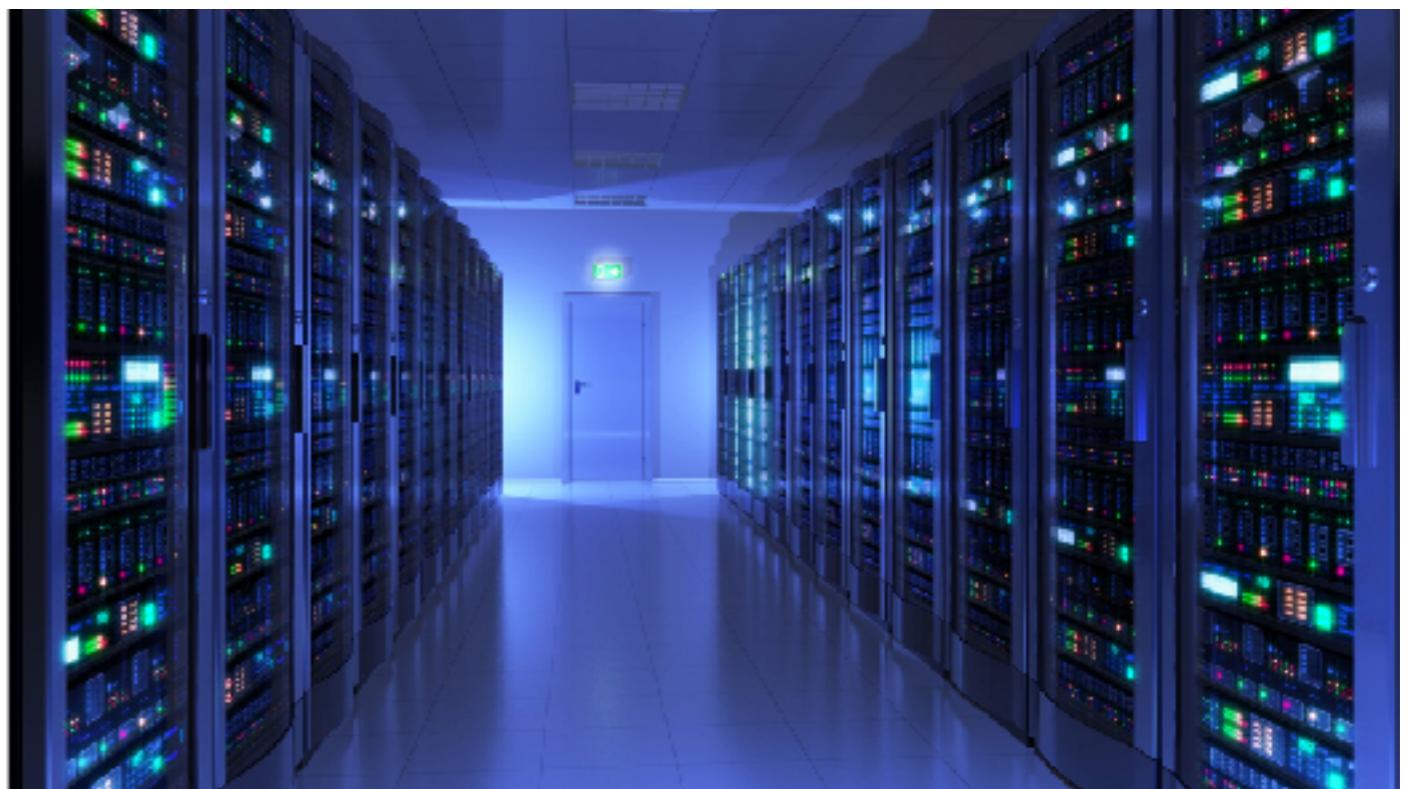


# Cloud



**“It is critical to build a scalable architecture in  
order to take advantage of a scalable  
infrastructure”**

# Move to Cloud



# Properties of REST

Heterogeneity

Scalability

Evolvability

Visibility

Reliability

Efficiency

Performance

Manageability



# Quiz

**Heterogeneity**



**Scalability**

**Evolvability**

**Visibility**



**Reliability**

**Efficiency**

**Performance**



**Manageability**

# **What is REST ?**

**Architectural style**

First introduced in 2000



# What is not REST ?

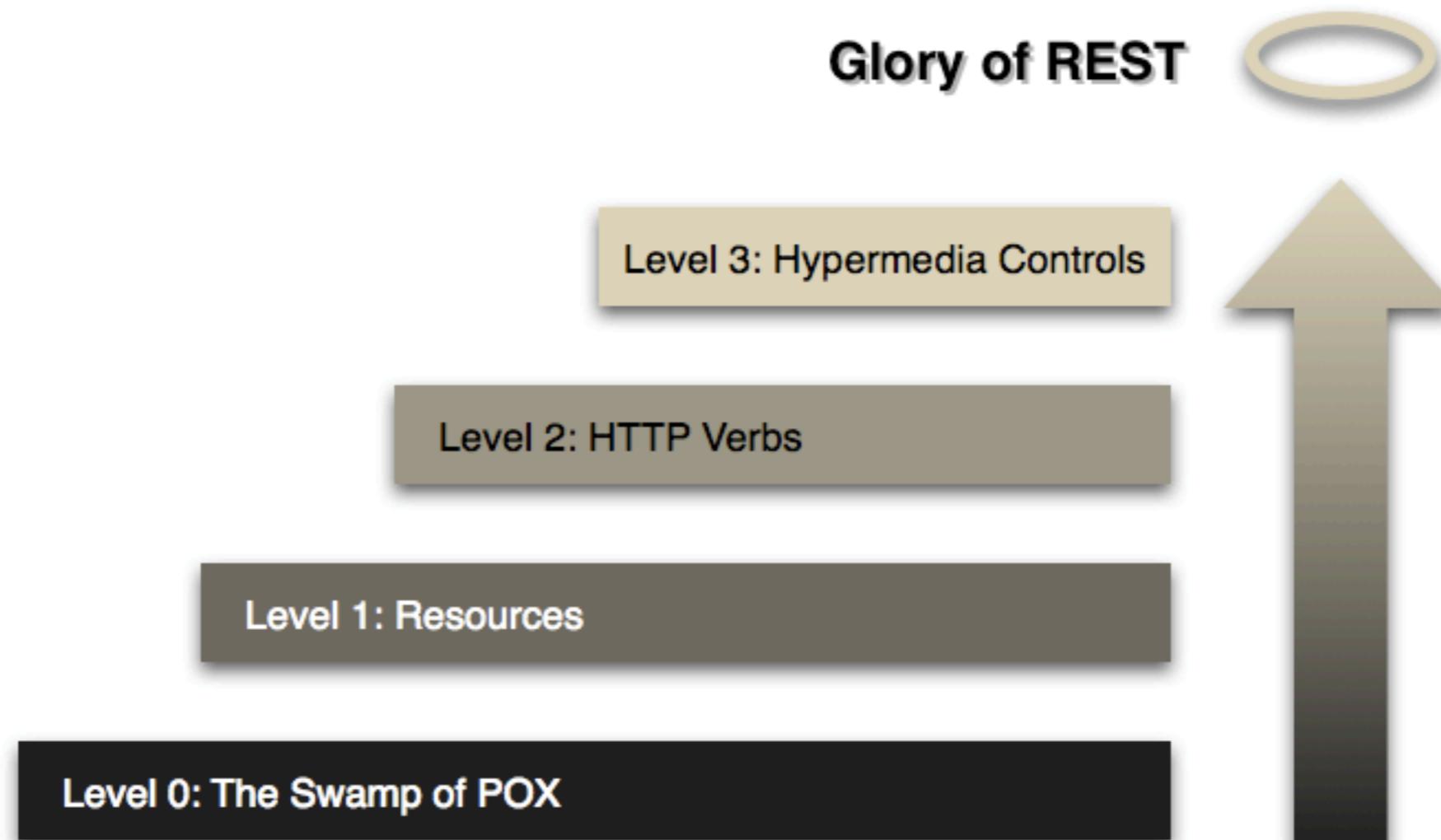
Protocol

RPC (Remote Procedure Call)

HTTP



# Richardson Maturity Model

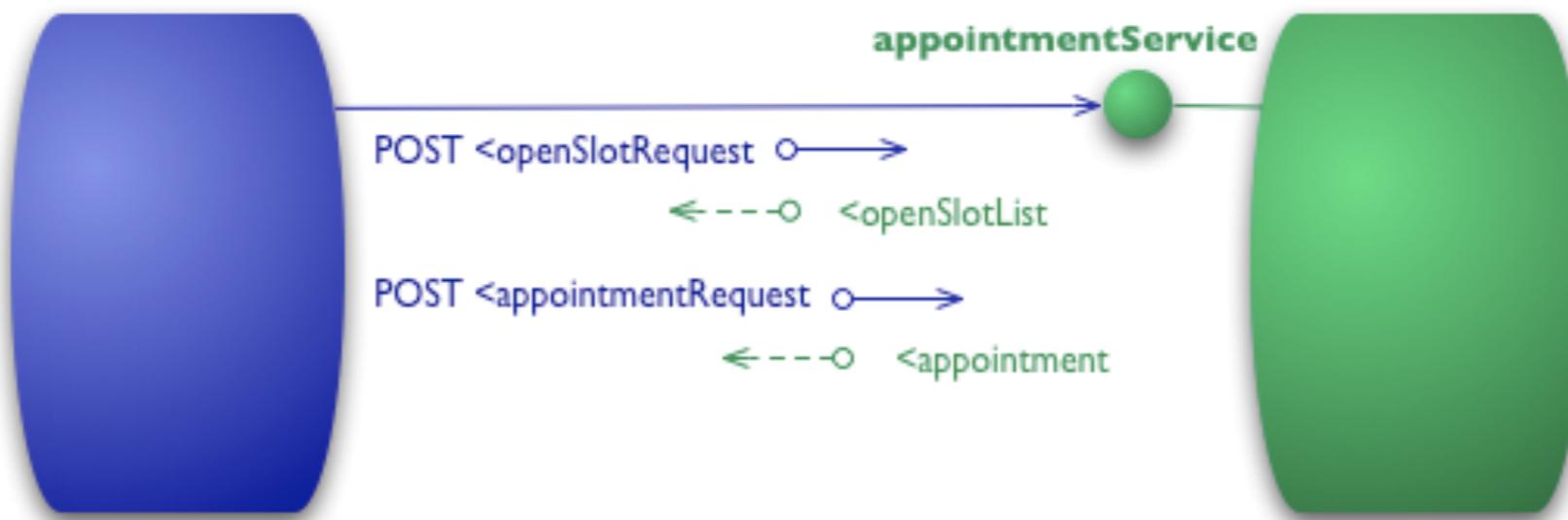


<https://martinfowler.com/articles/richardsonMaturityModel.html>



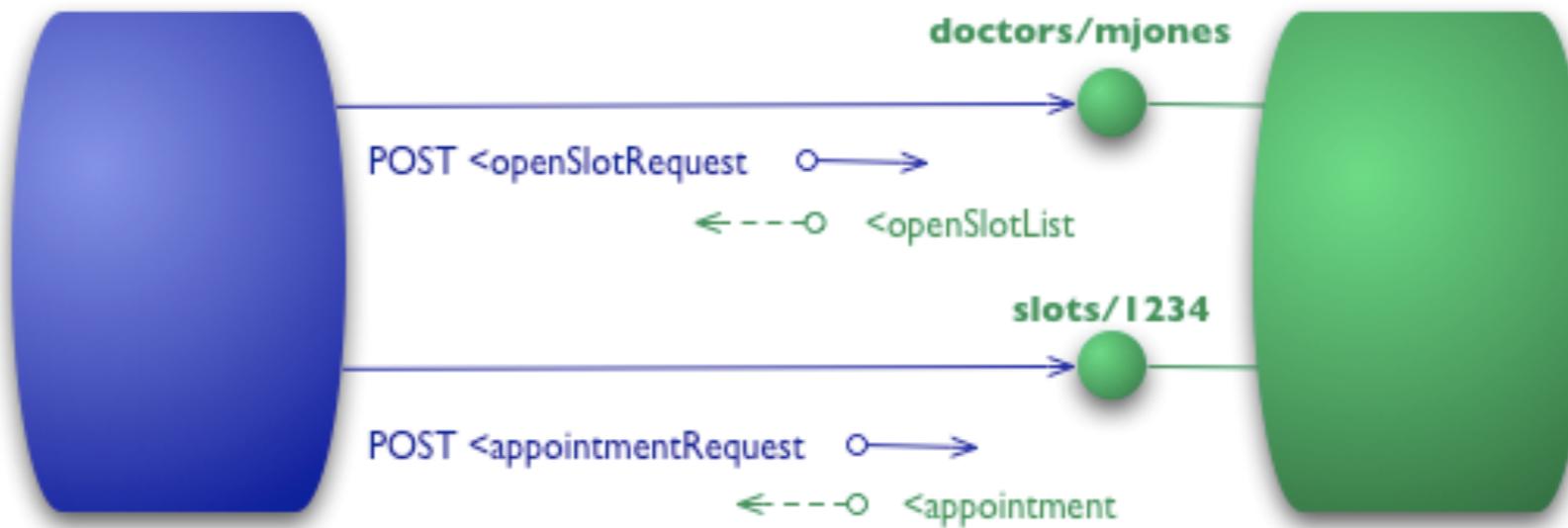
# Level 0

## Heterogeny



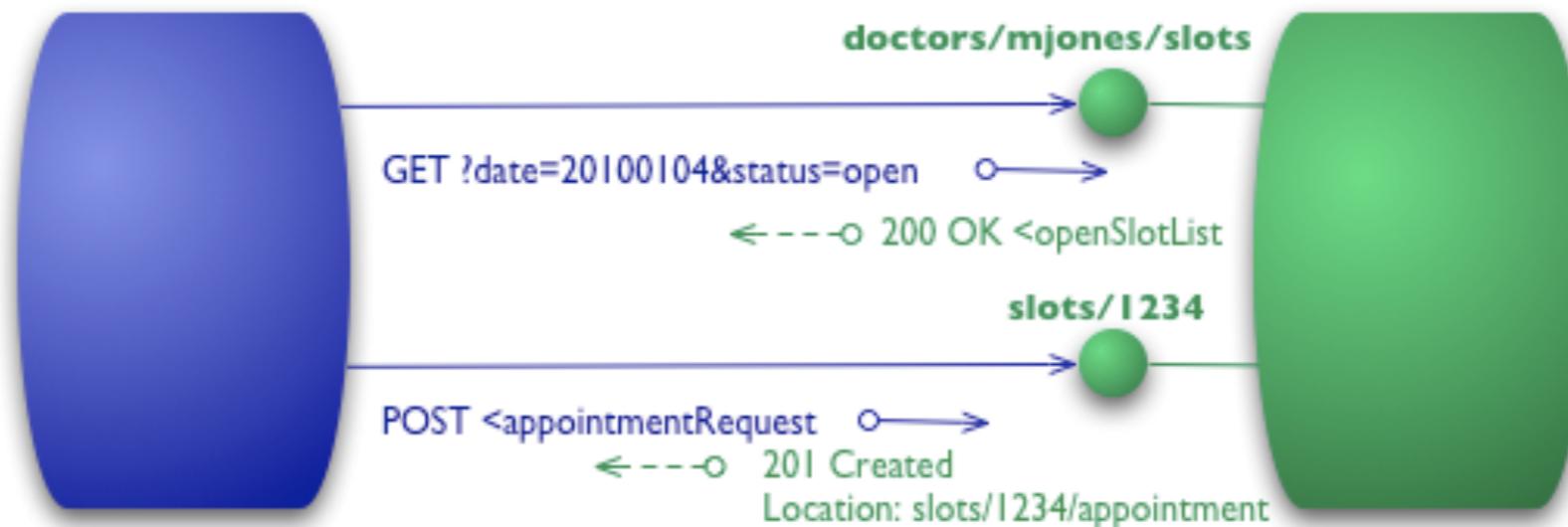
# Level 1 :: Resources

Heterogeny



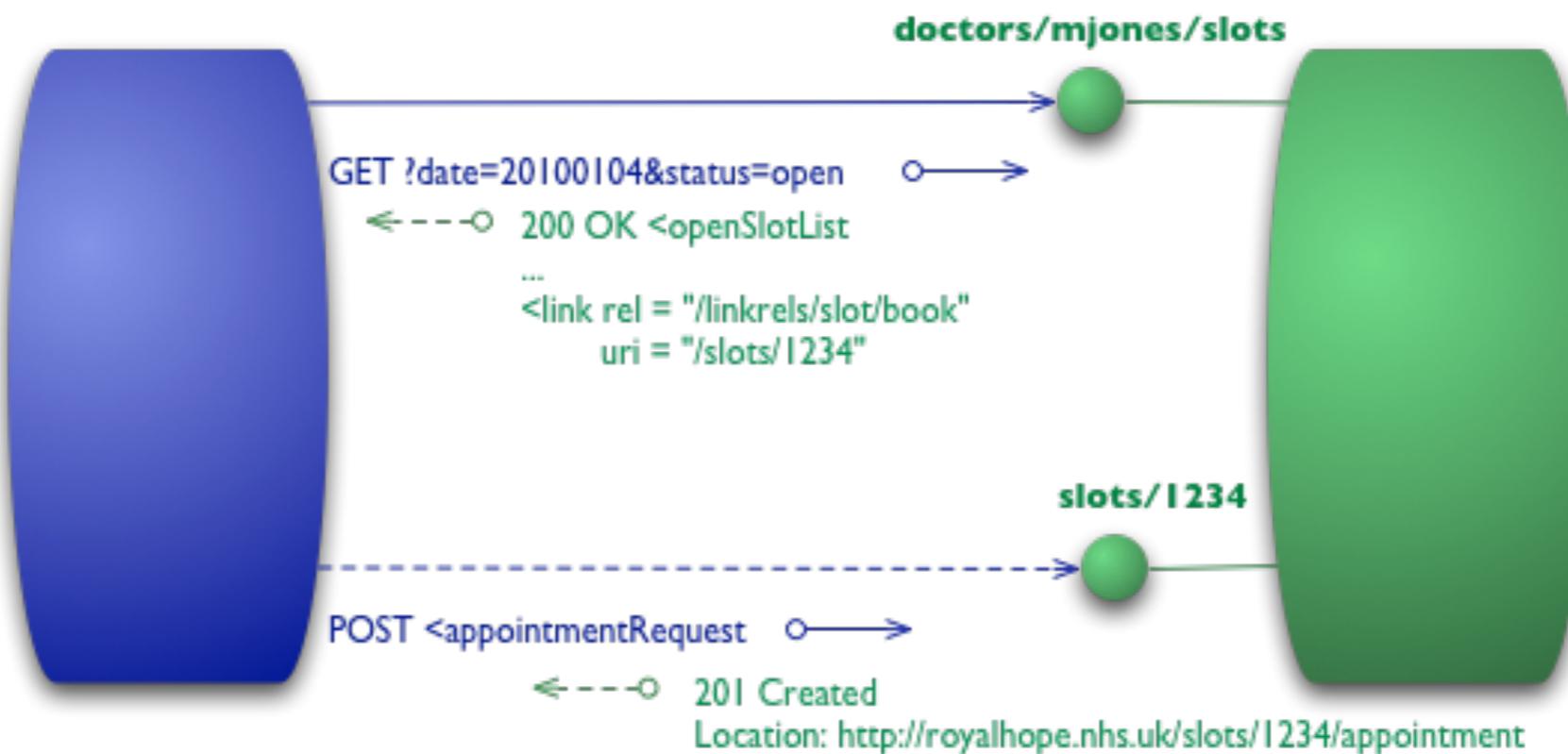
# Level 2 :: HTTP verbs

## Heterogeny



# Level 3 :: Hypermedia controls

## Heterogeneity



# Summary

## Level 1

breaking a large service  
into multiple resources



# **Summary**

**Level 2**

**Standard set of verbs**



# **Summary**

## **Level 3**

**Discoverability, provide a way of making a protocol more self-documenting**



# REST constraints

Client-server

Stateless

Cache

The Uniform Interface

Layered system

Code-on-Demand



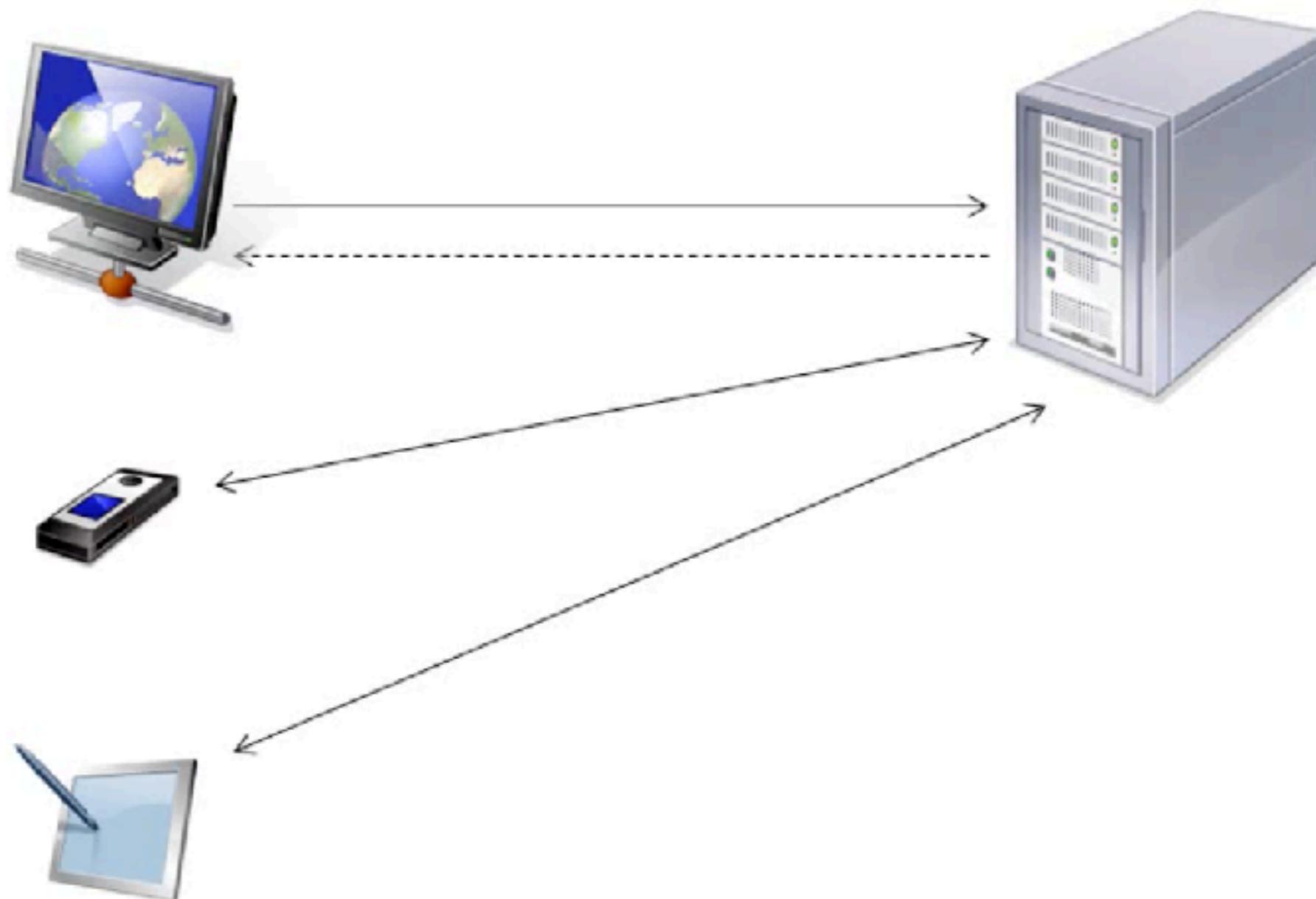
# Client-server



# Client-server



# Client-server



# Concerns

Security

Administration

Heterogeneous network

Complexity



# Benefits

Portability of clients

Scalability

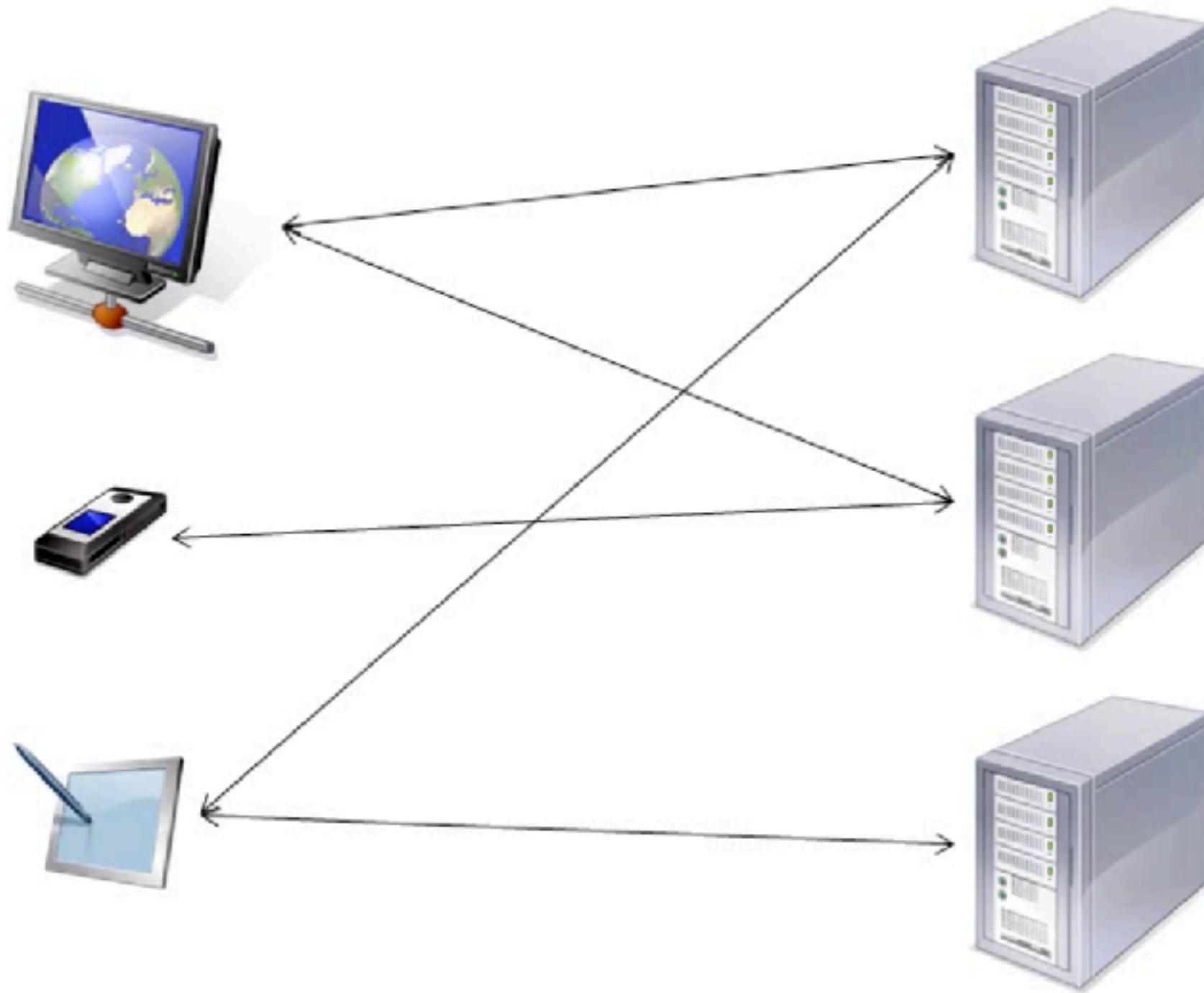
Evolvability



# Stateless



# Stateless



# Concerns

Network reliability

Network topology

Complexity

Administration



# Benefits

Visibility

Reliability

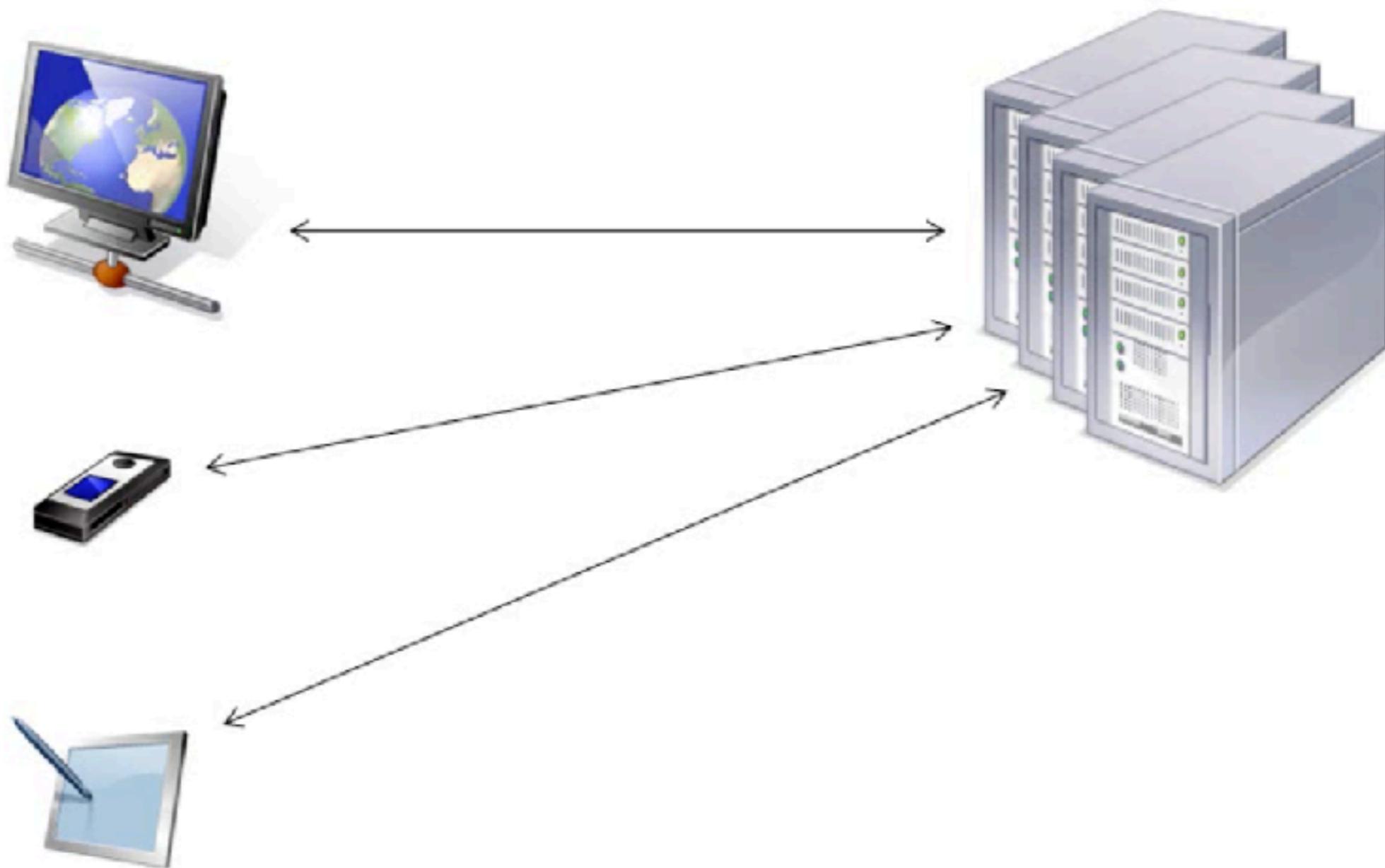
Scalability



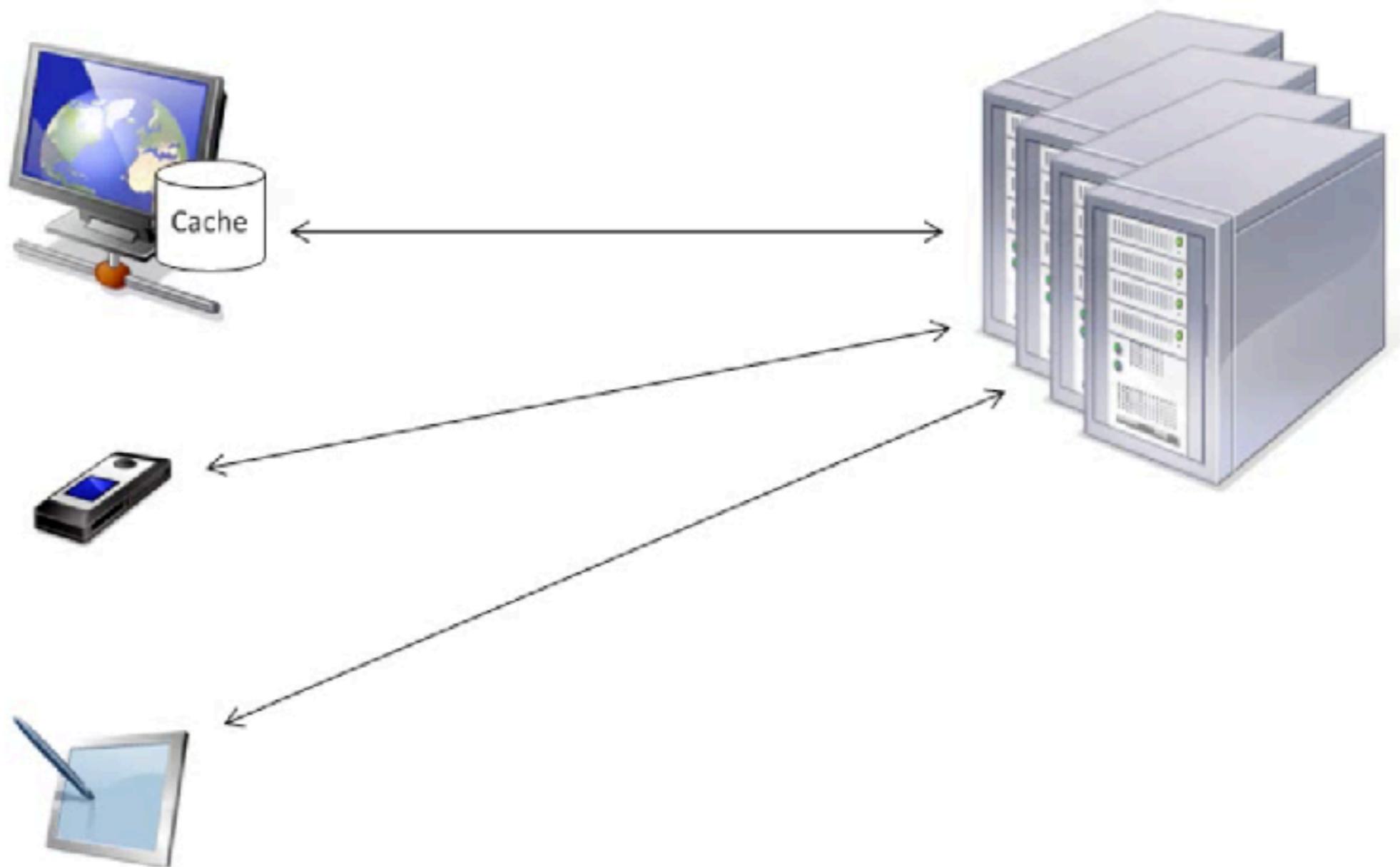
# Cache



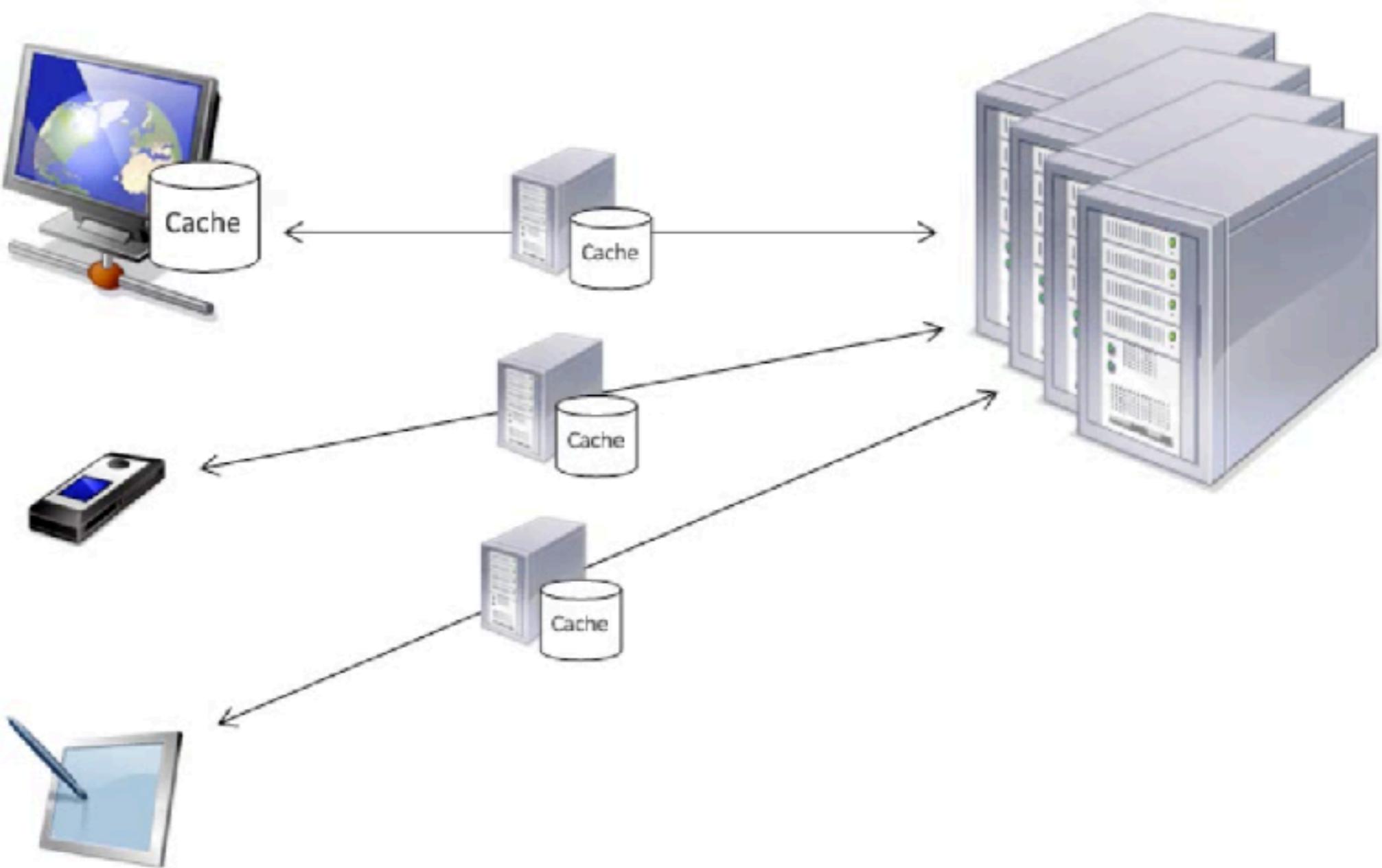
# Cache



# Cache



# Cache



# Concerns

Latency

Bandwidth

Transport cost



# Benefits

Efficiency

Scalability

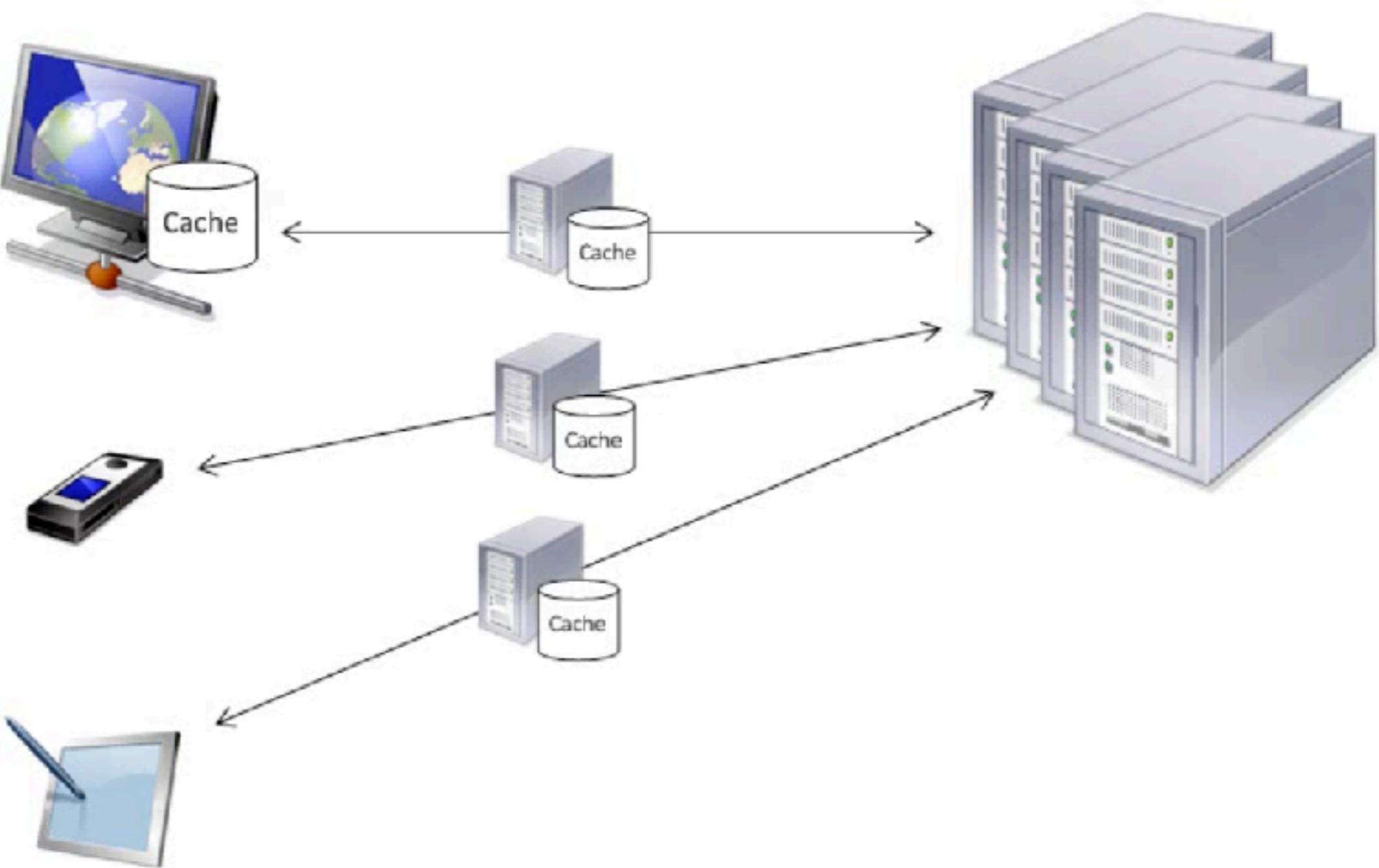
Performance



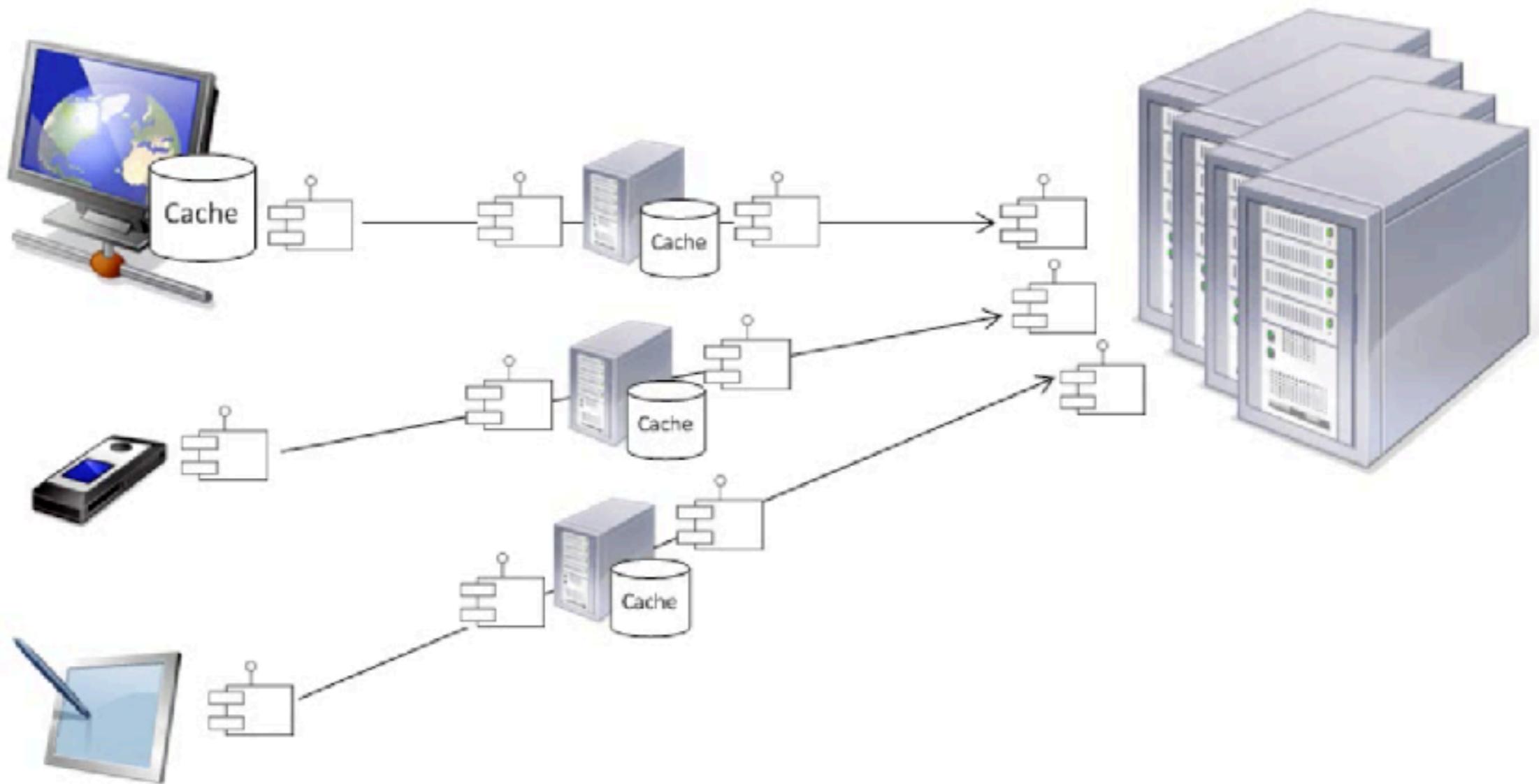
# The Uniform Interface



# The Uniform Interface



# The Uniform Interface



# **Elements of the Uniform interface**

**Identification of resources**

**Manipulation through representations**

**Self-descriptive messages**

**Hypermedia as the engine of app state**



# Concerns

Network reliability

Network topology

Administration

Complexity

Heterogeneous network



# Benefits

Visibility

Evolvability

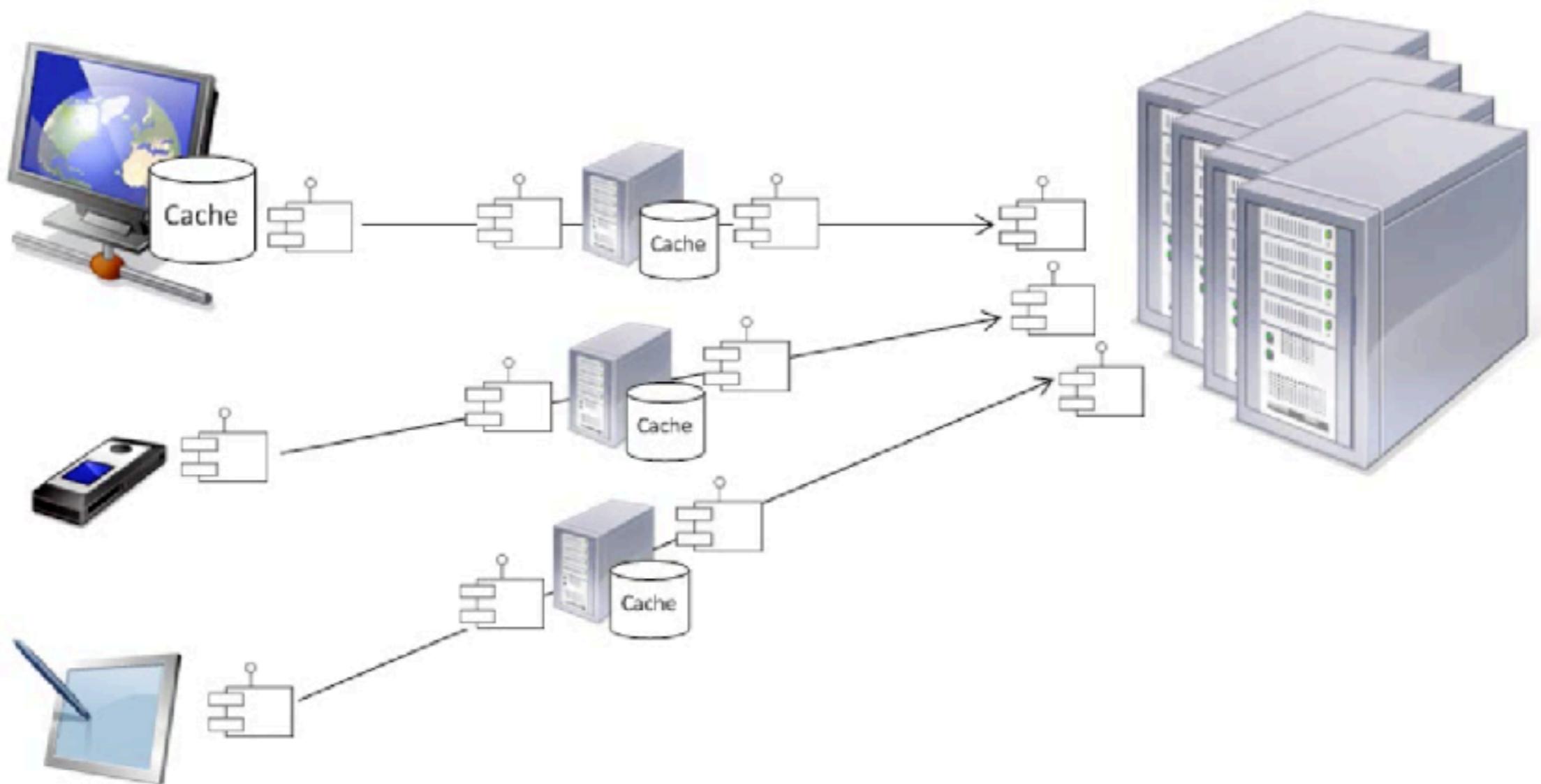
Performance



# Layered system



# Layered system



# Concerns

Network topology

Complexity

Security



# Benefits

Scalability

Manageability

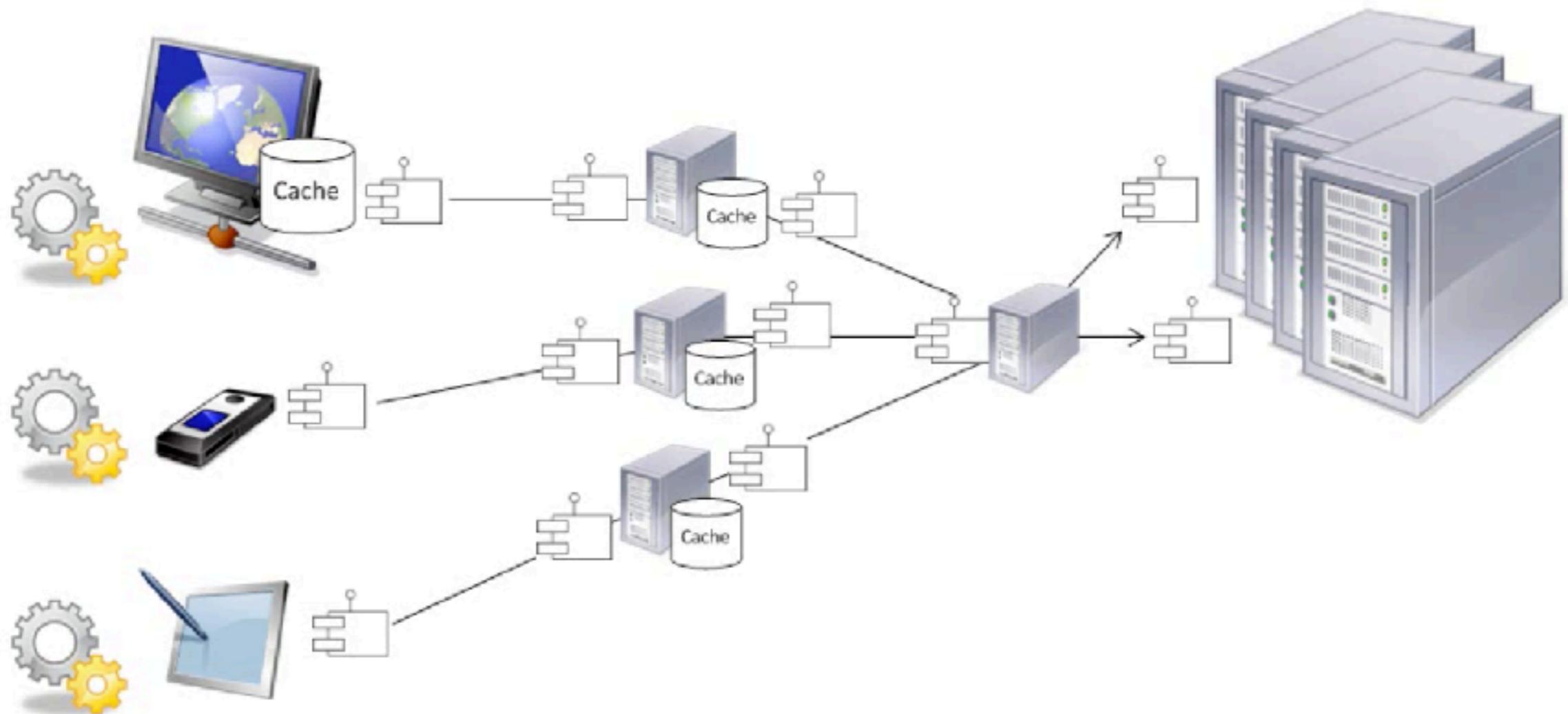
Performance



# **Code-on-demand (optional)**



# Code-on-demand



# Code-on-demand

Help to manage complexity

The trade-off is visibility

