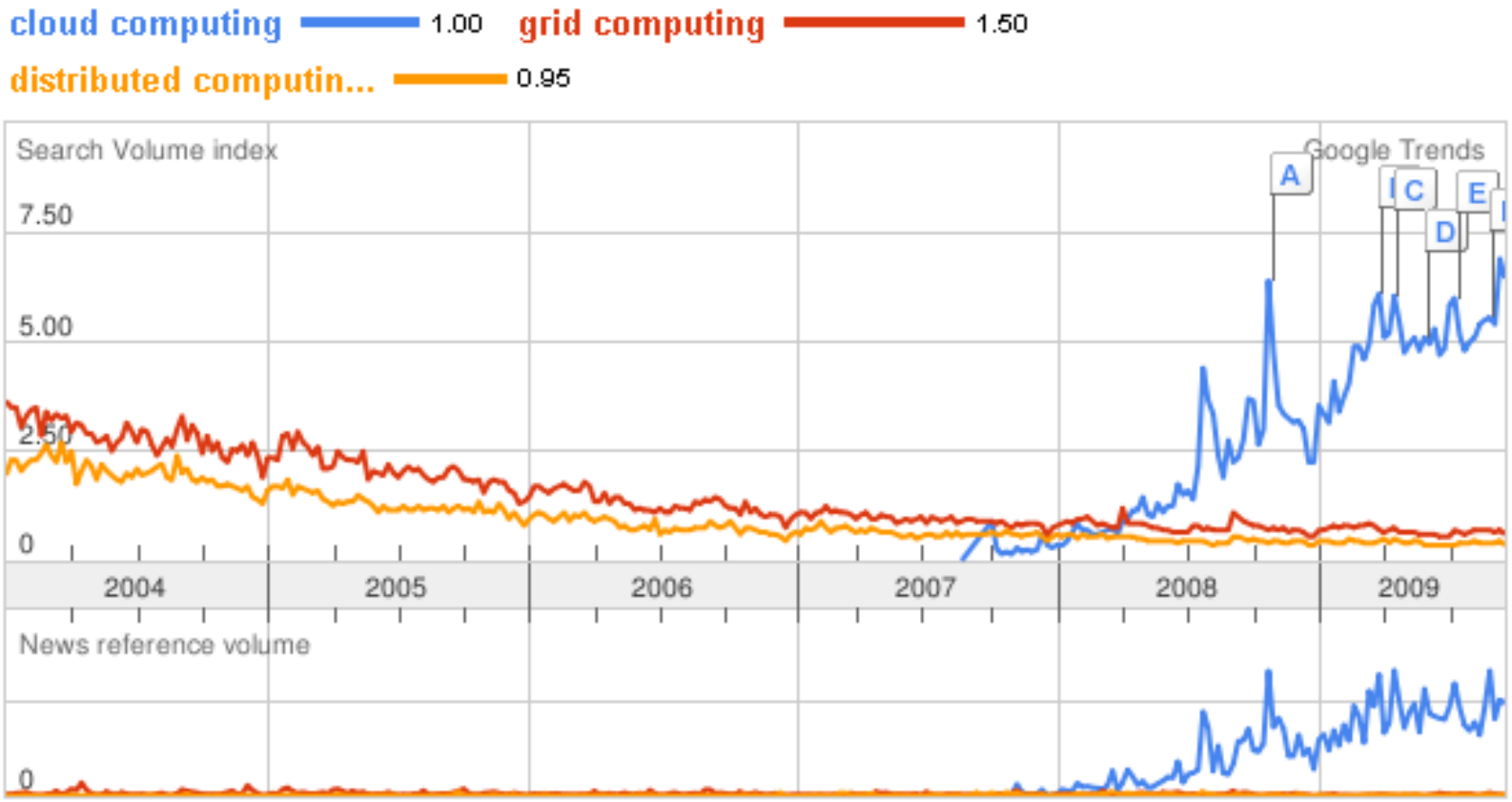
Hybrid Cloud Computing for FOSS4G

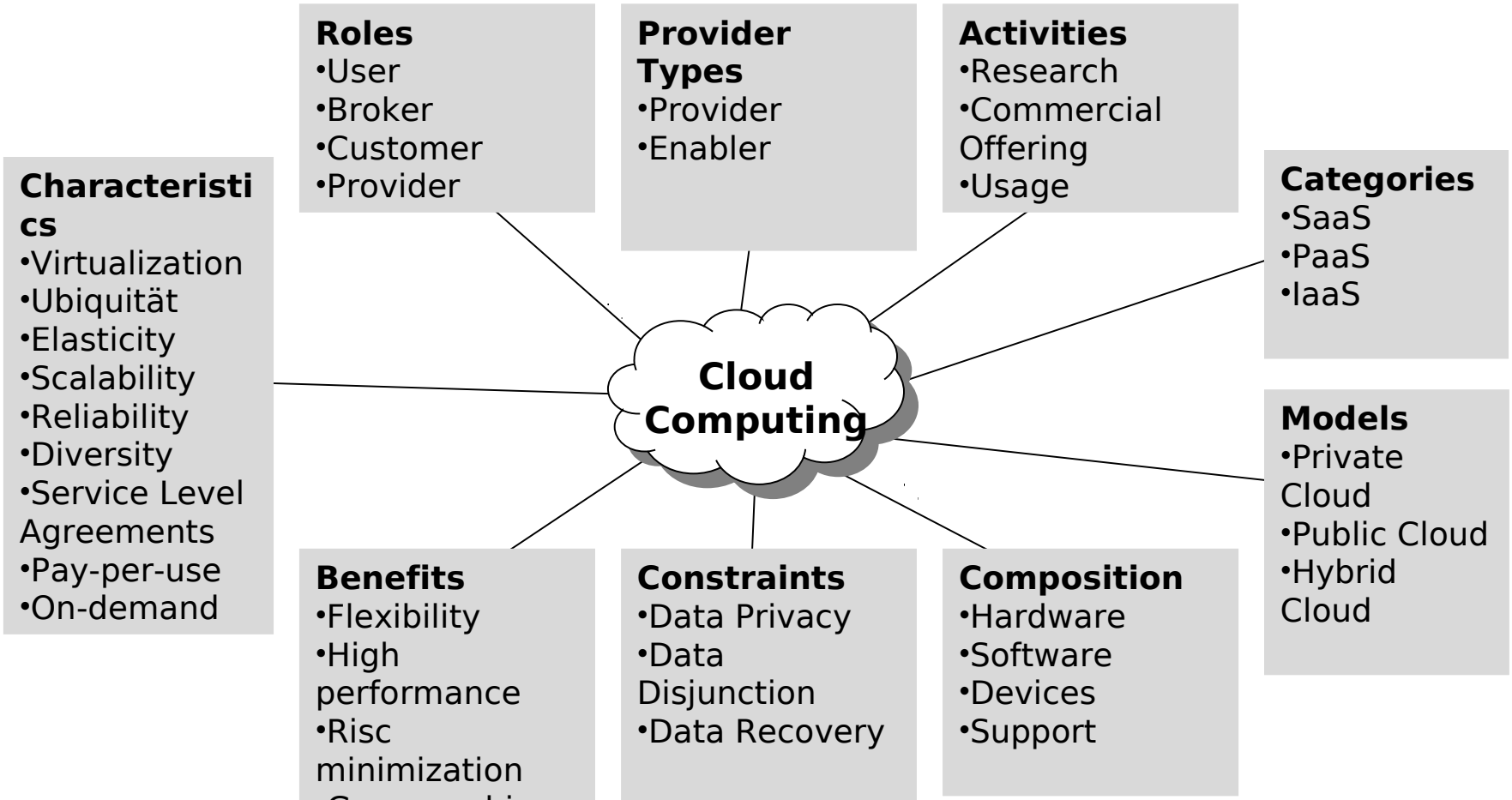
Bastian Schäffer, Theodor Foerster & Bastian Baranski

52°North

Google Trends

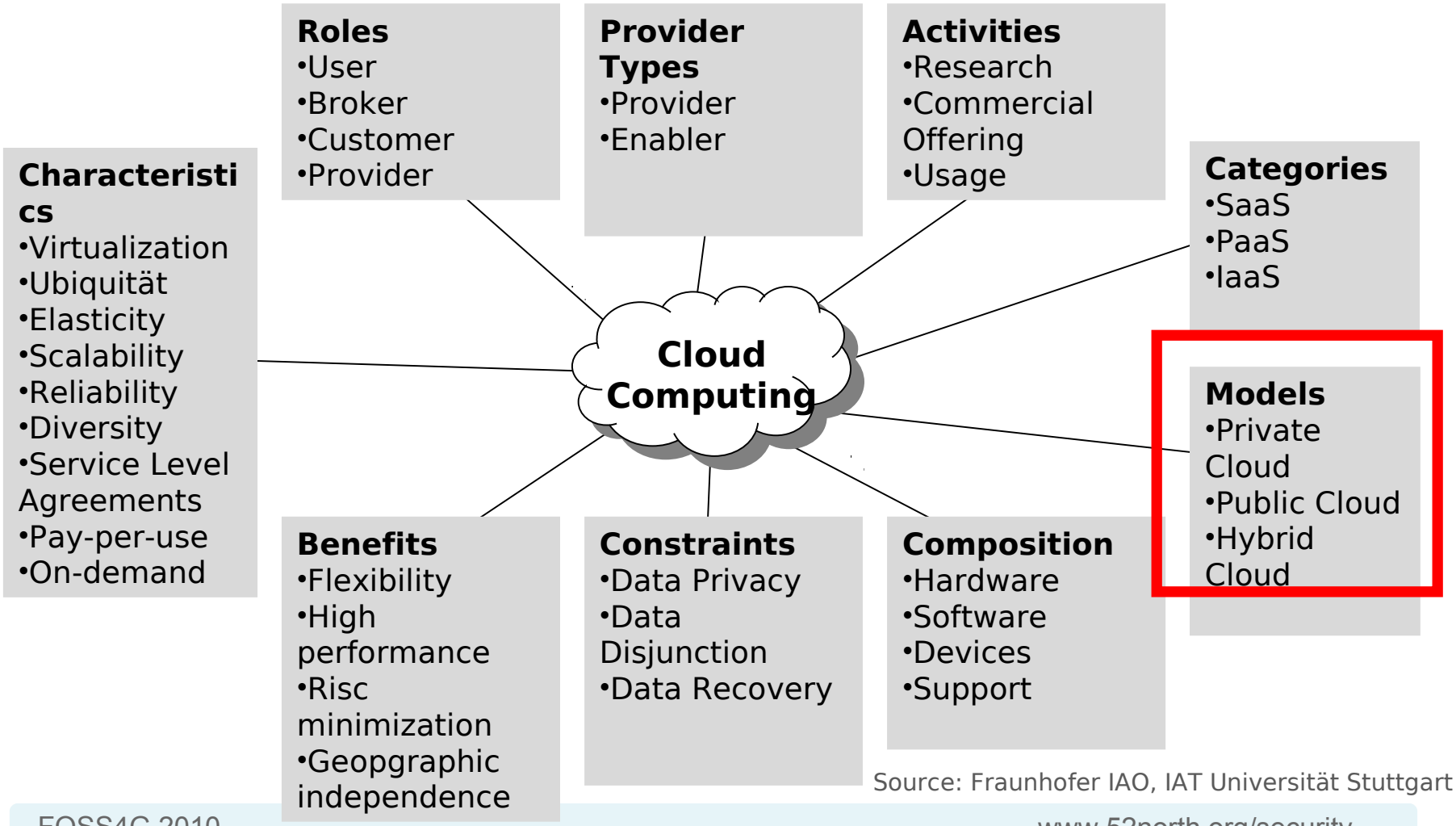


Aspects



Source: Fraunhofer IAO, IAT Universität Stuttgart

Aspects



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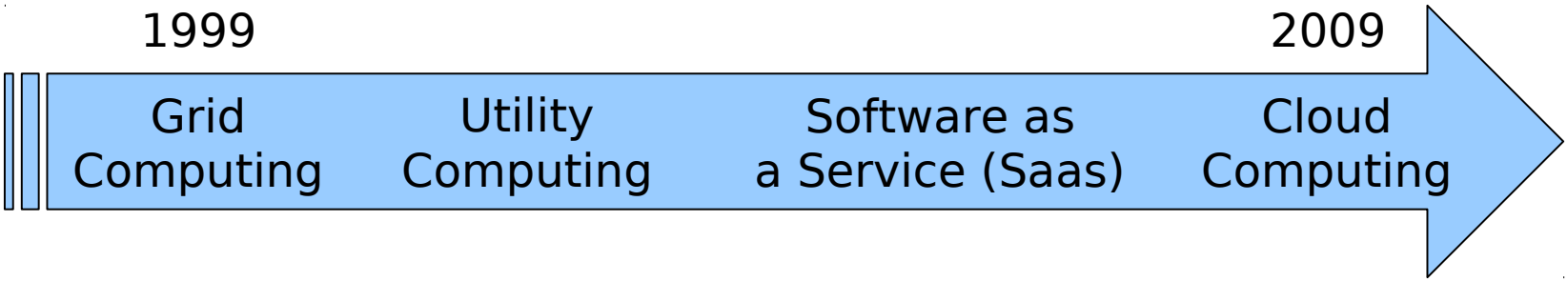
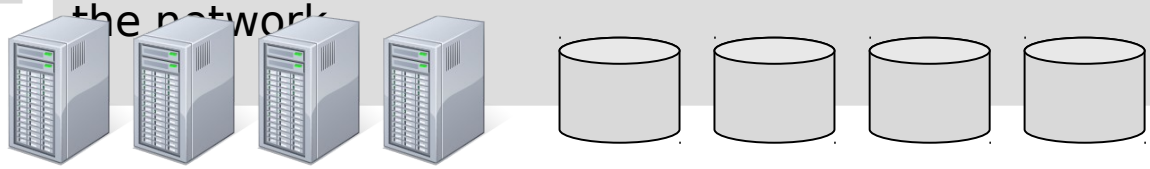
Cloud Computing

- The cloud metaphor is used to represent efficient, elastic, scalable and reliable computational infrastructures
- Provisioning of resources (server, storage, applications … whole IT infrastructures) via services and web-applications over the network
- Outsourcing data and applications to external service providers
- Replacing classical desktop software with web-based applications



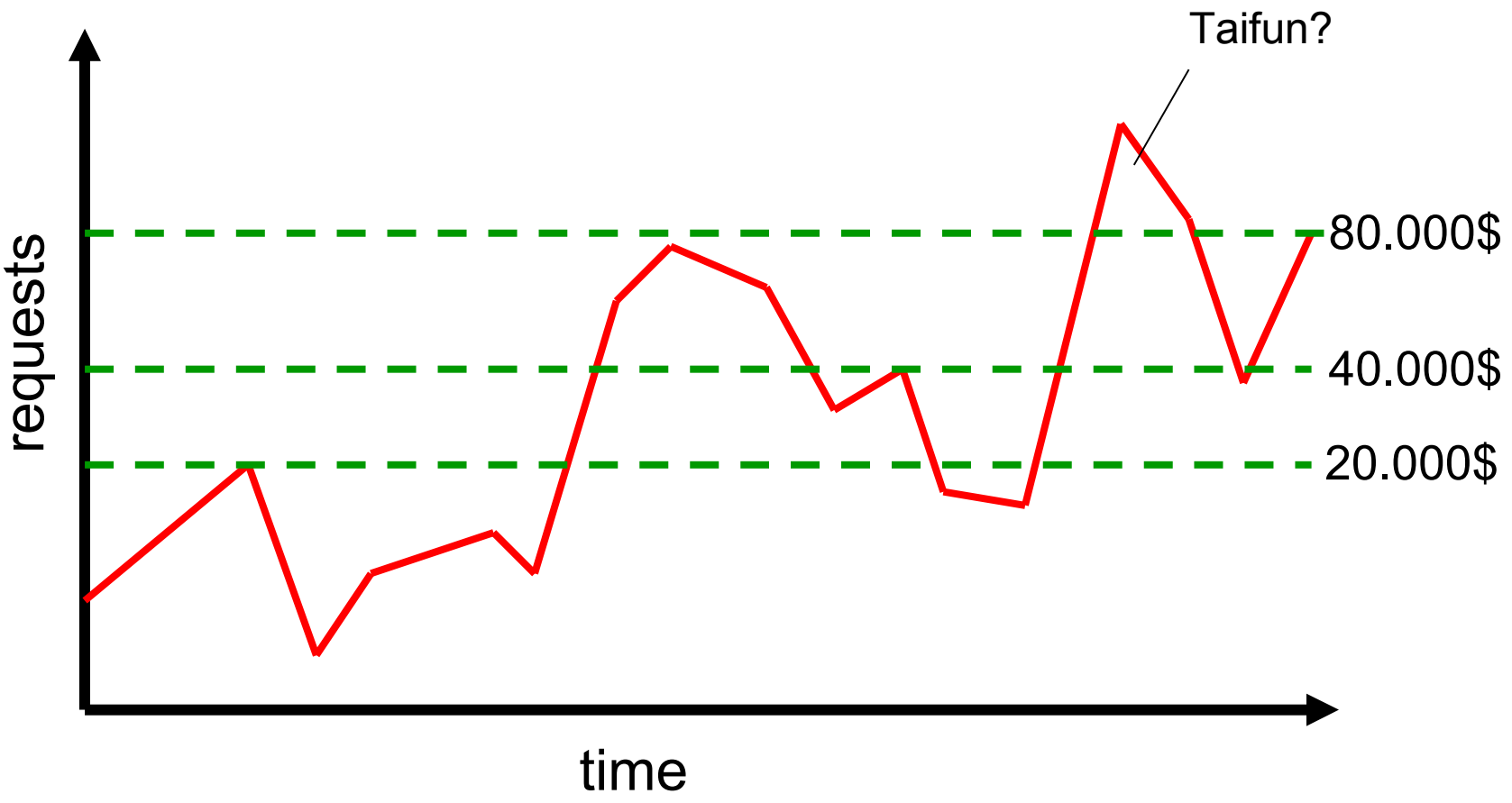
Categories

Software as a Service (SaaS)	- Dyncamic Software and data provisioning (outsourcing, on-demand) - Allows pay-per-use revenue models
Platform as a Service (PaaS)	- Software development and deployment platform - Quality of Service, QoS (scalability) managed by cloud provider
Infrastructure as a Service (IaaS)	- Virtualized and dynamically managed (elasticity) IT infrastructure - Dynamic resource (server, storage) provisioning (on-demand) - Delivers computational infrastructures as services over the network

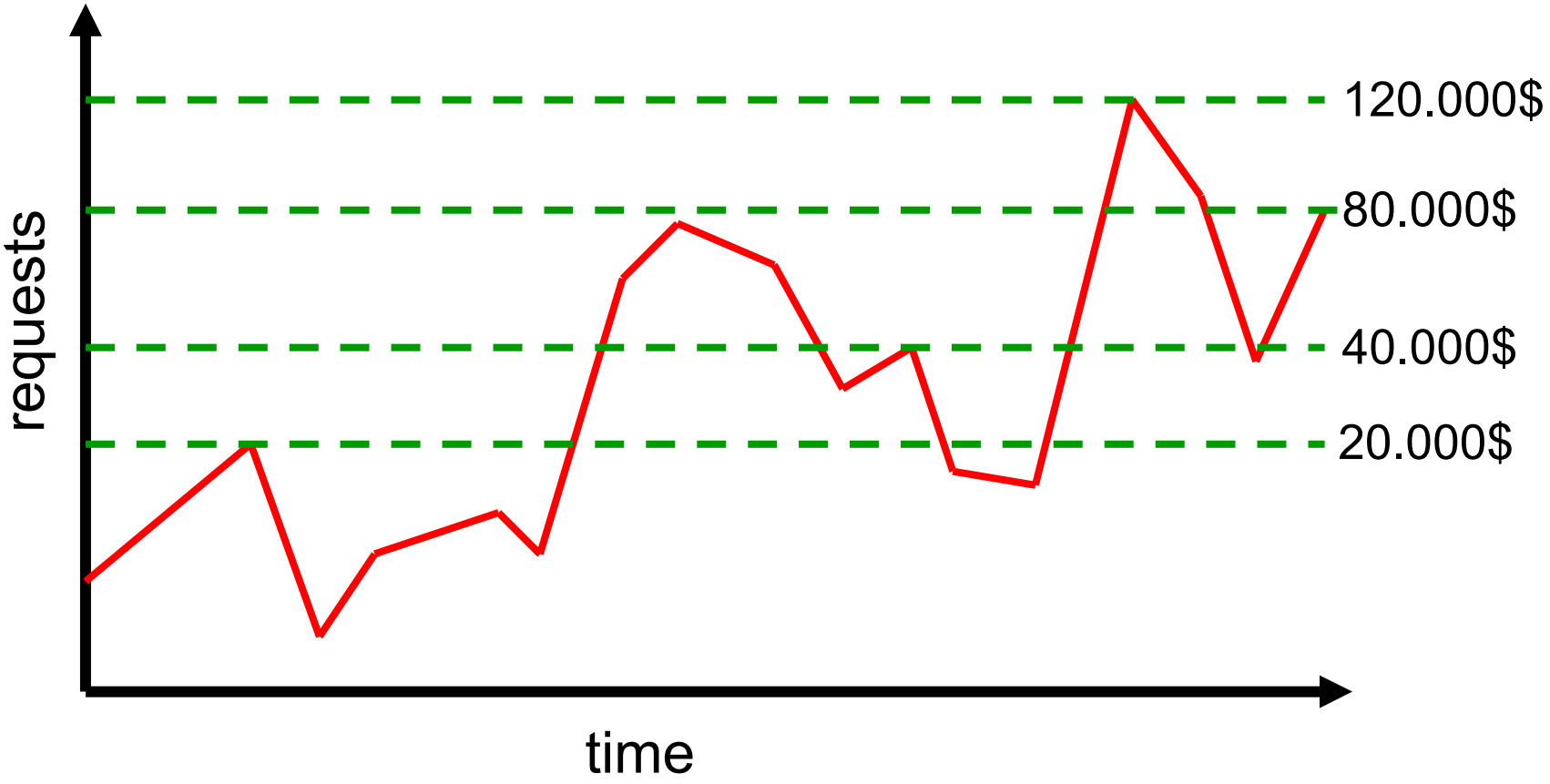


Server Storage

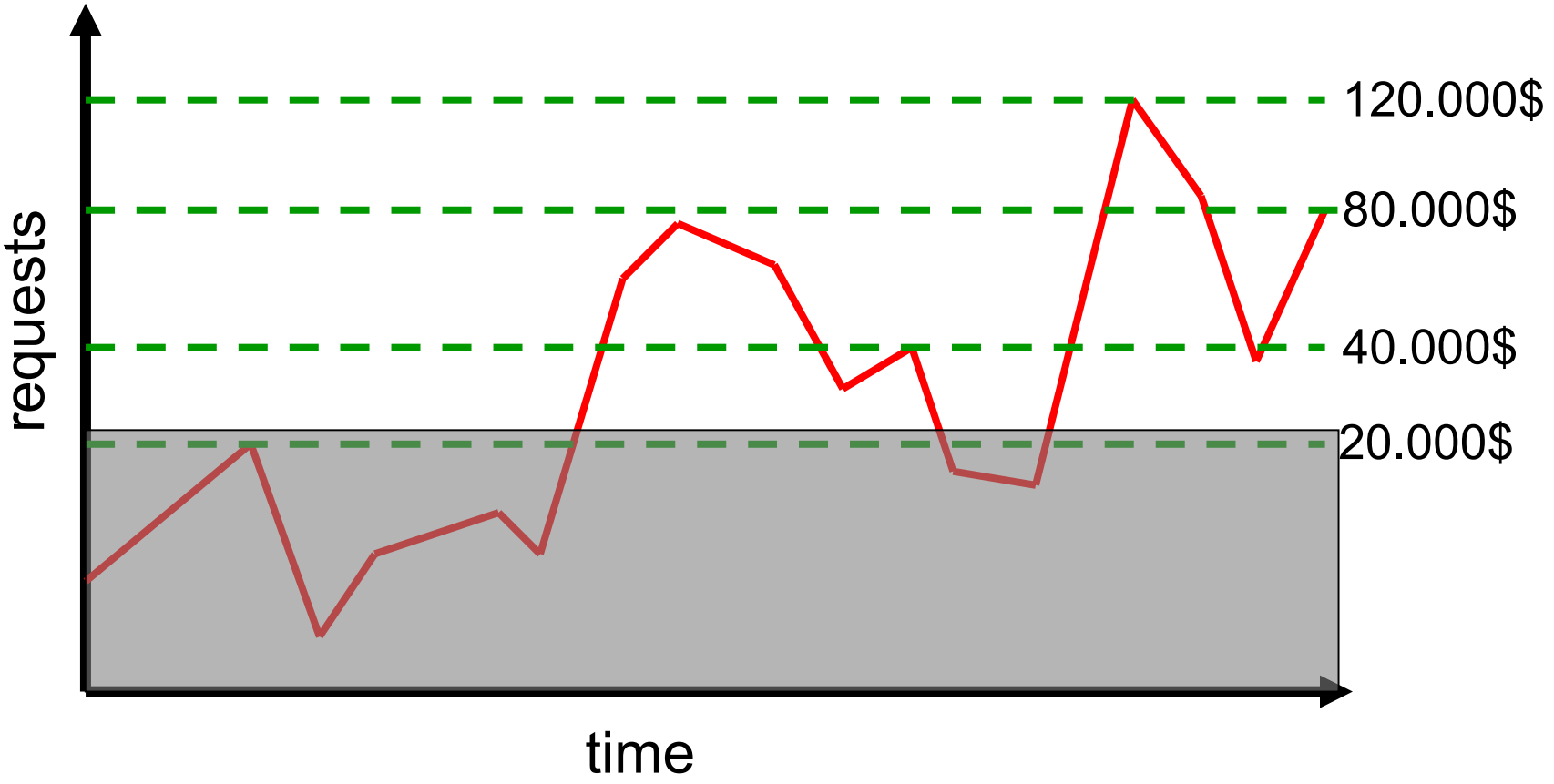
IT investments & maintenance



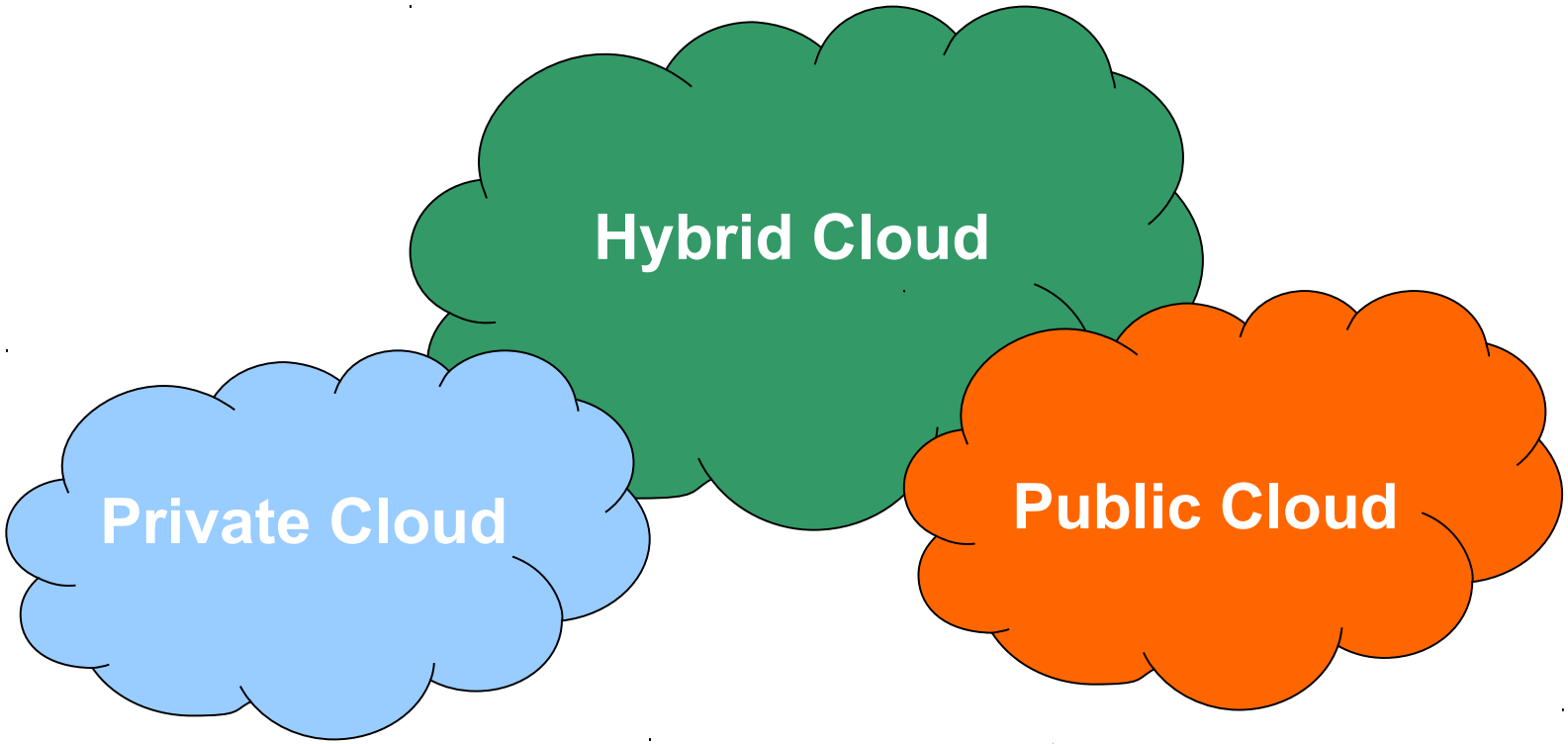
IT investments & maintenance



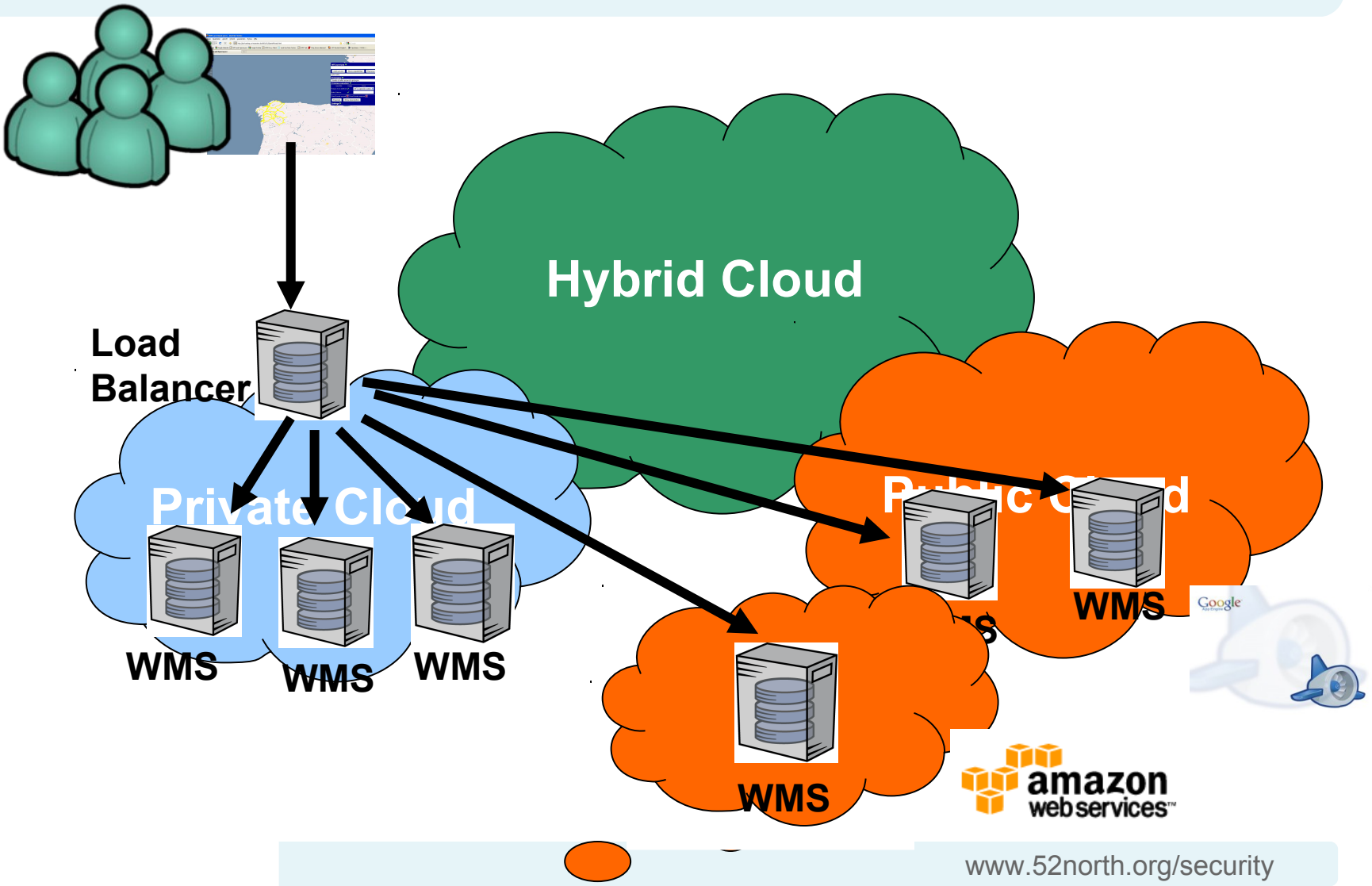
IT investments & maintenance



Hybrid Clouds



Hybrid Clouds



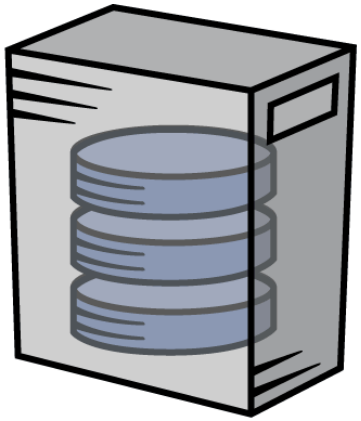
52north exploring horizons

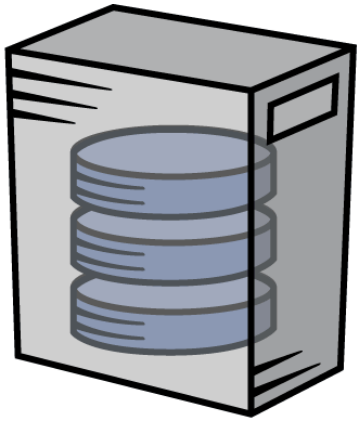
Static Model

Architecture

Intel Pentium
D CPU
2.80GHz

2GB RAM



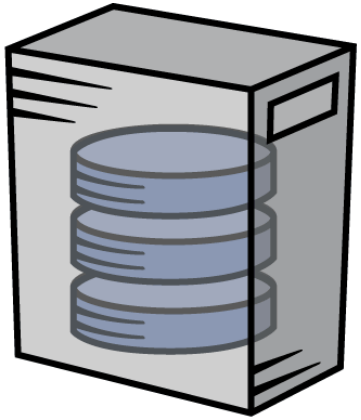


Intel Core 2 Duo
CPU E6850
3.00GHz

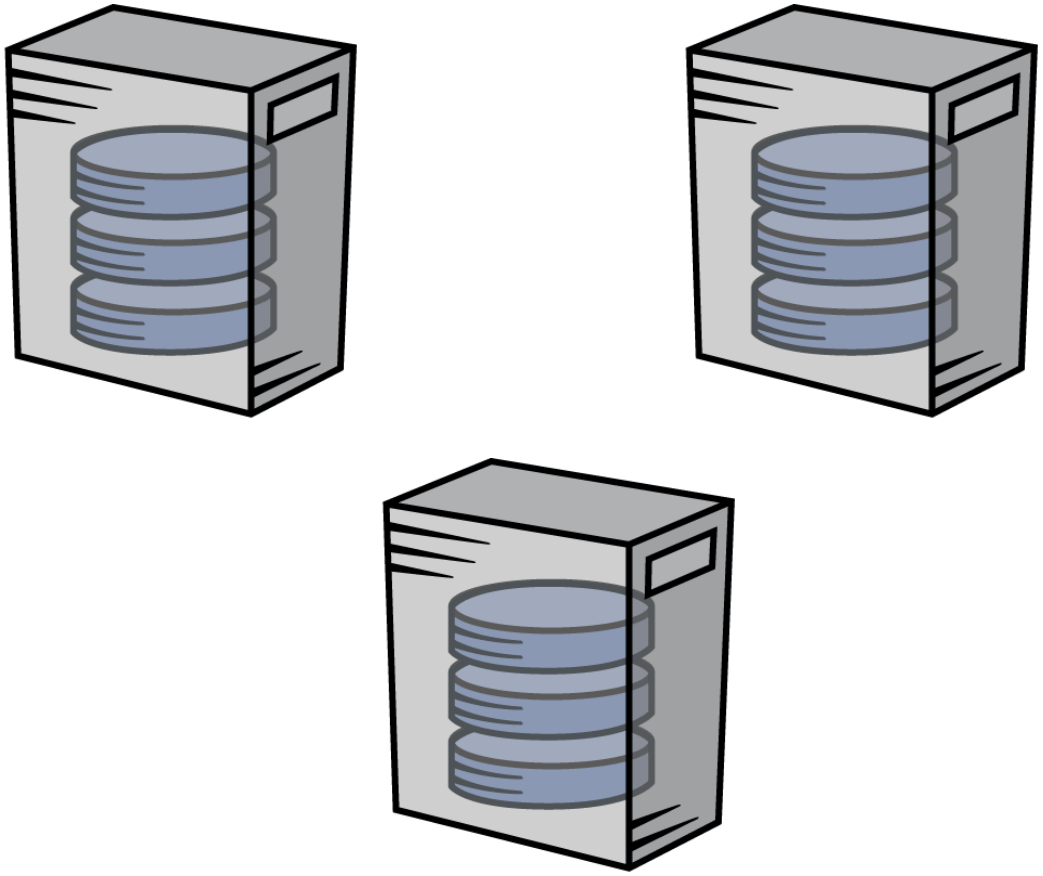
4GB RAM

Intel Core 2
Duo CPU
E8500
3.16GHz

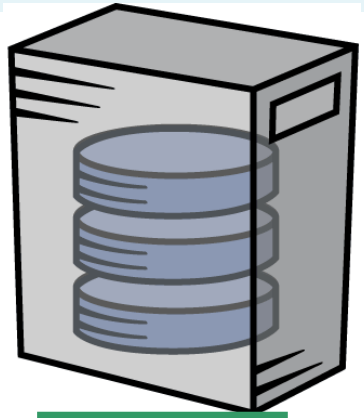
4GB RAM



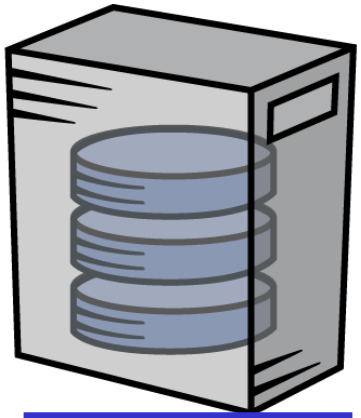
Architecture



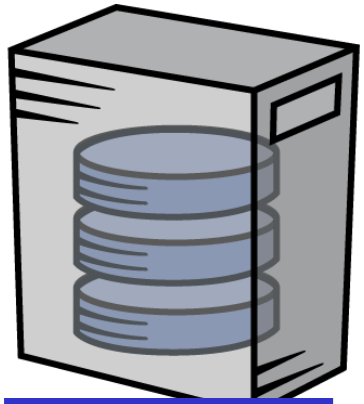
Architecture



Head Node

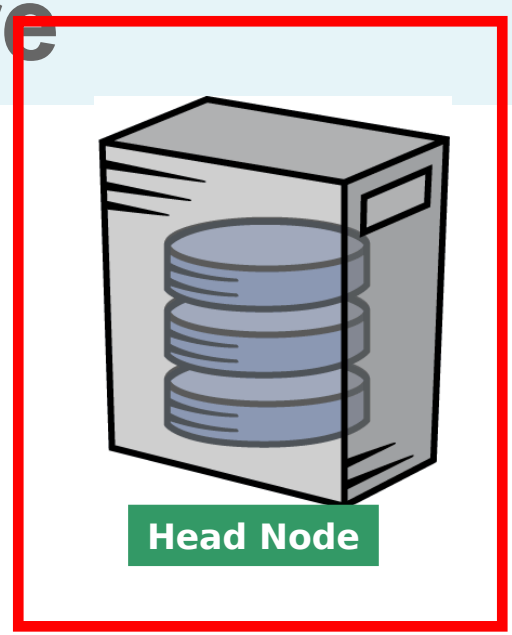


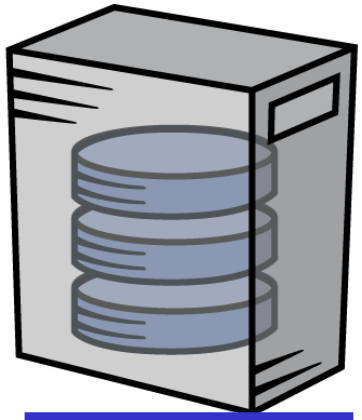
Worker Node 1

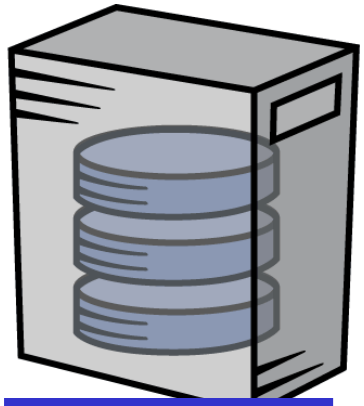


Worker Node 2

Architecture



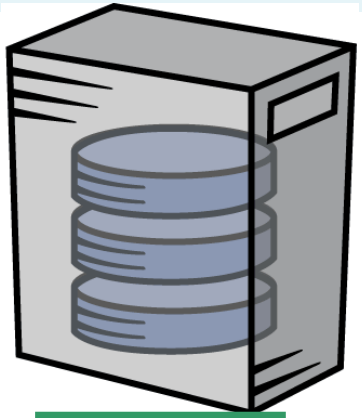




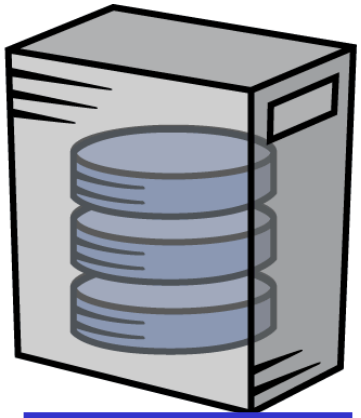
Head Node

Cloud Controller
Cluster Controller

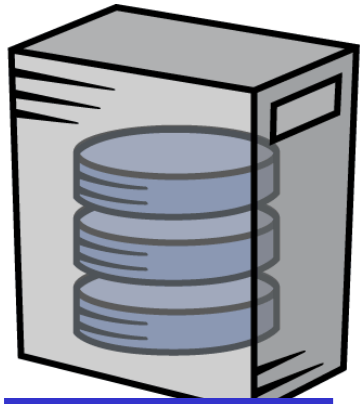
Architecture



Head Node

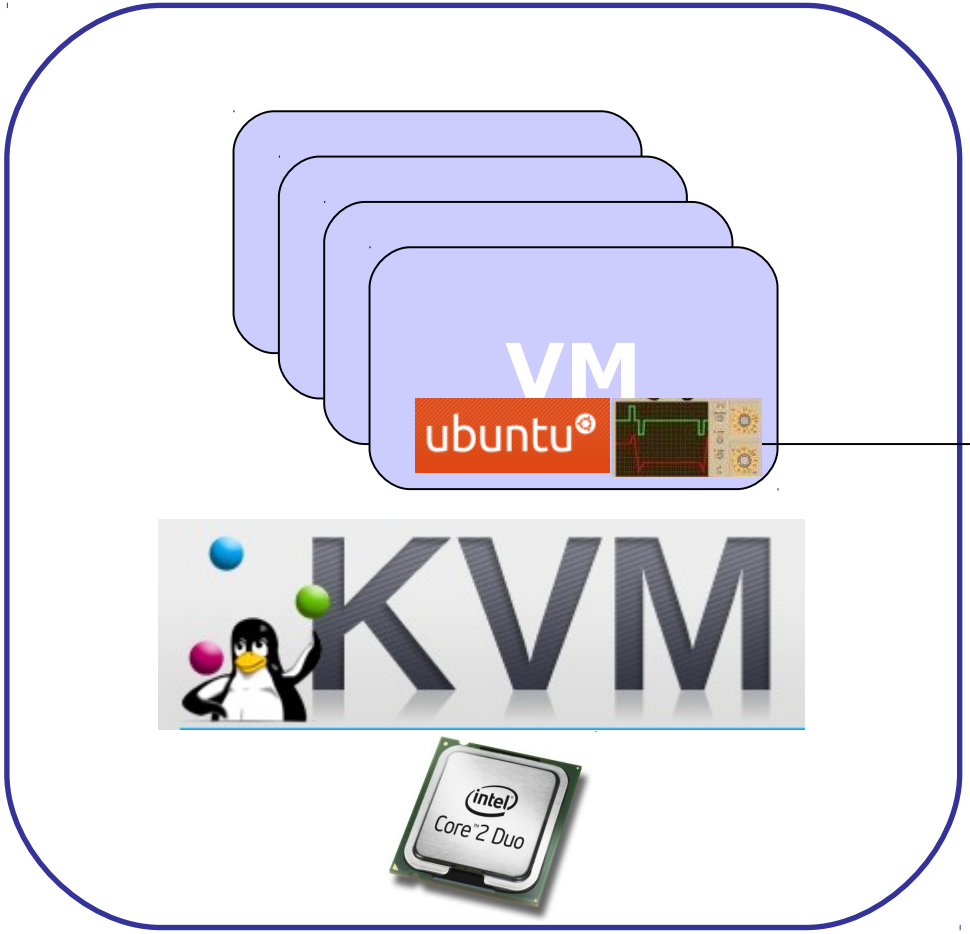


Worker Node 1

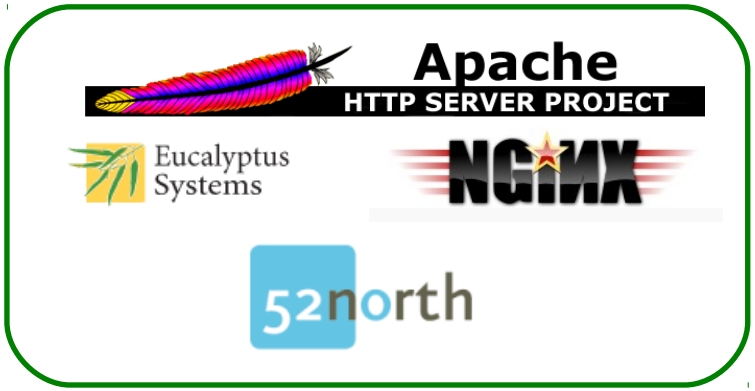


Worker Node 2

Worker Node



Big Picture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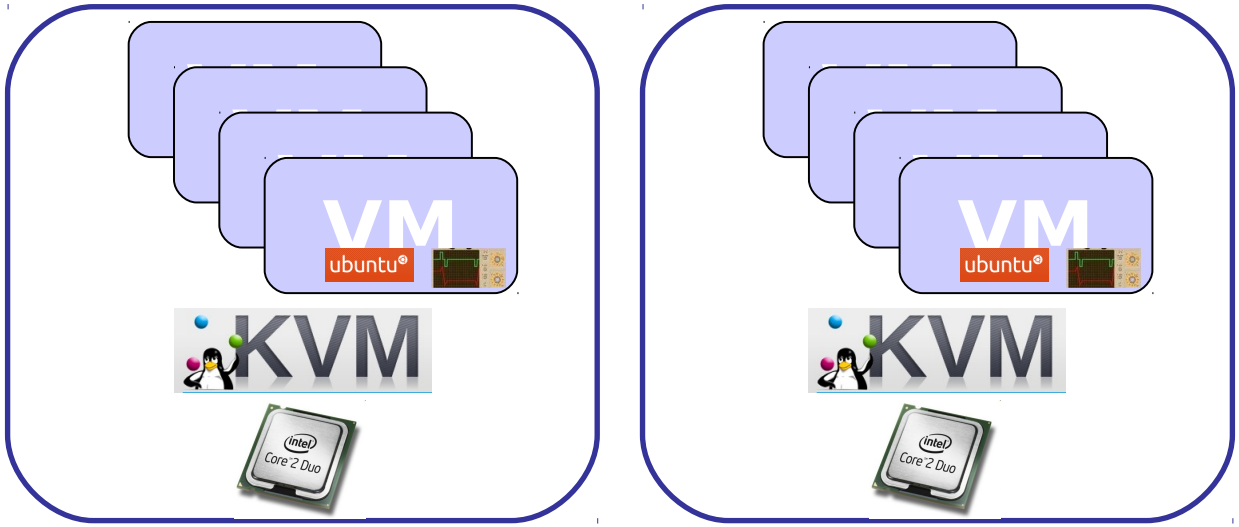
Eucalyptus Systems
NGINX
52north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KVM
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Core 2 Duo
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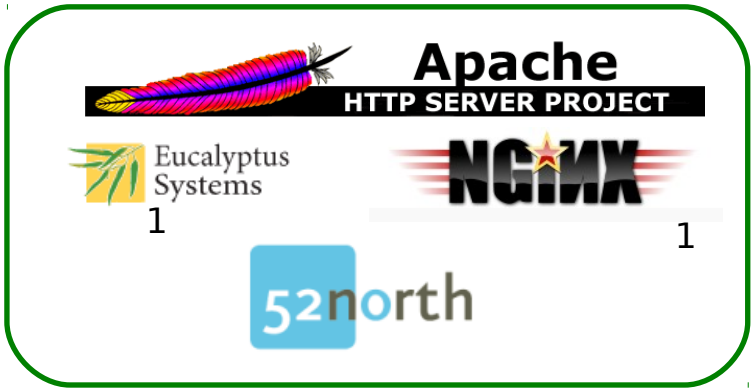
Core 2 Duo

Dynamic Model

Big Picture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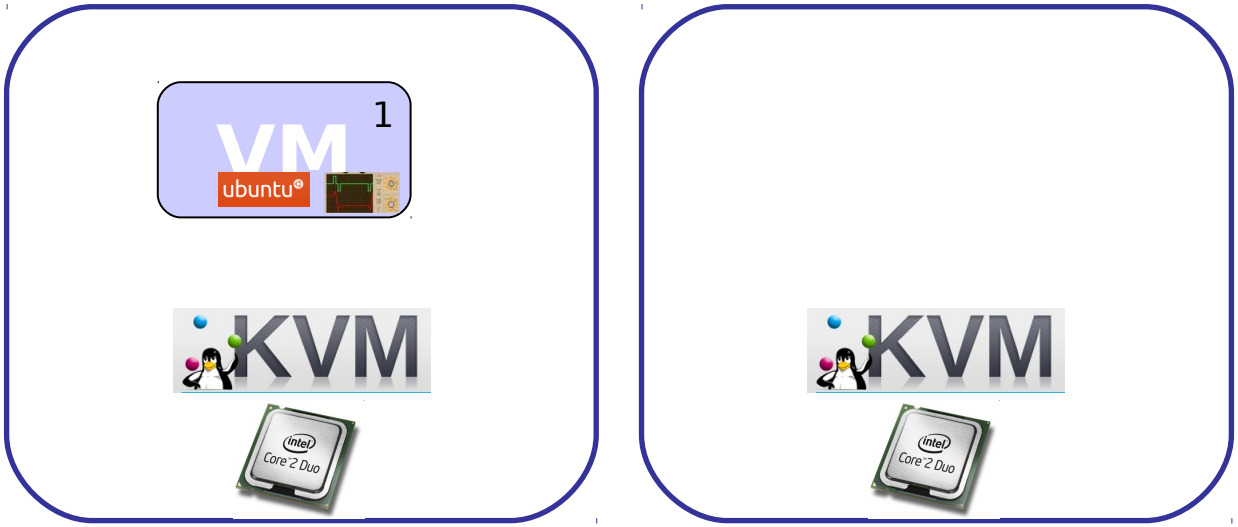
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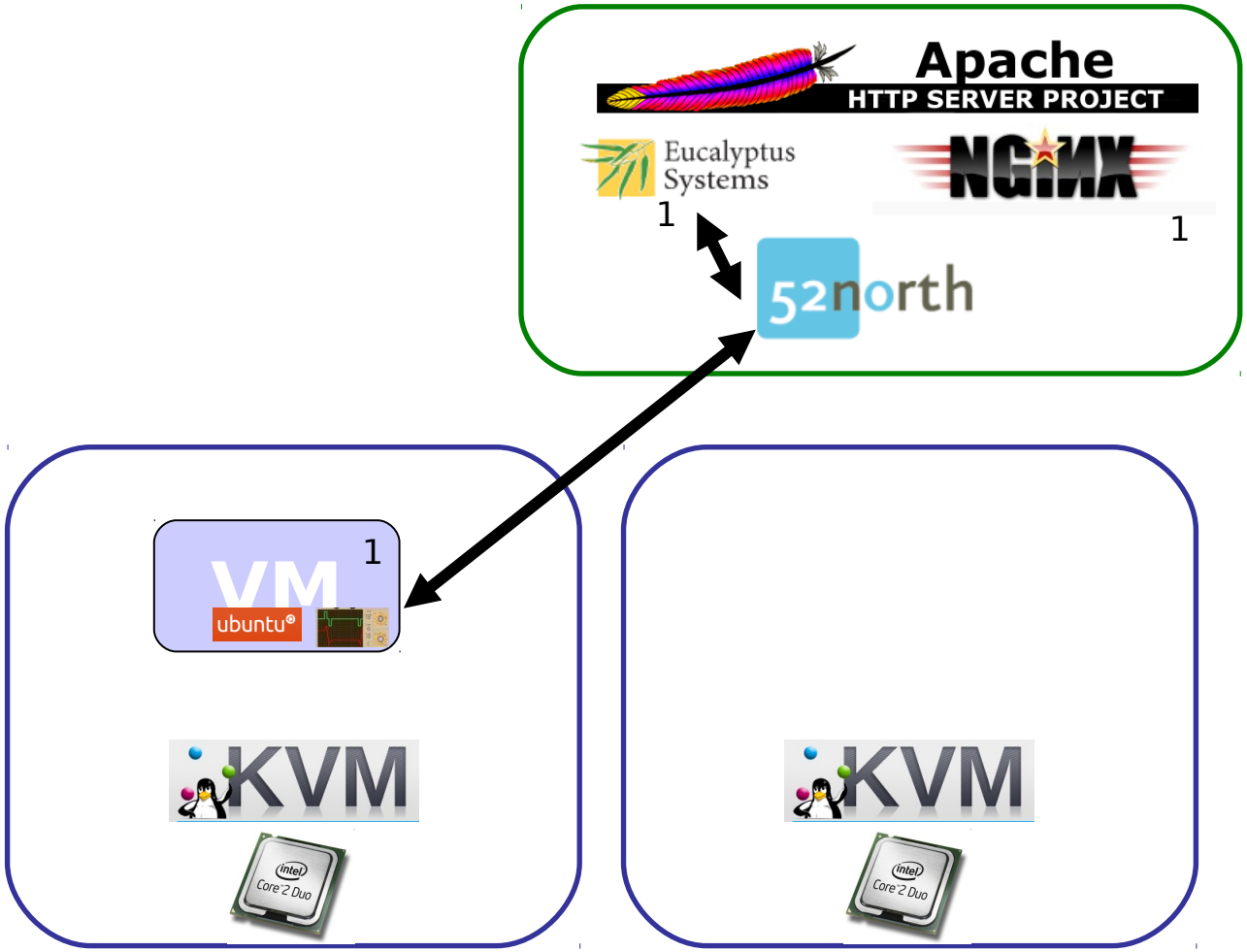
Big Picture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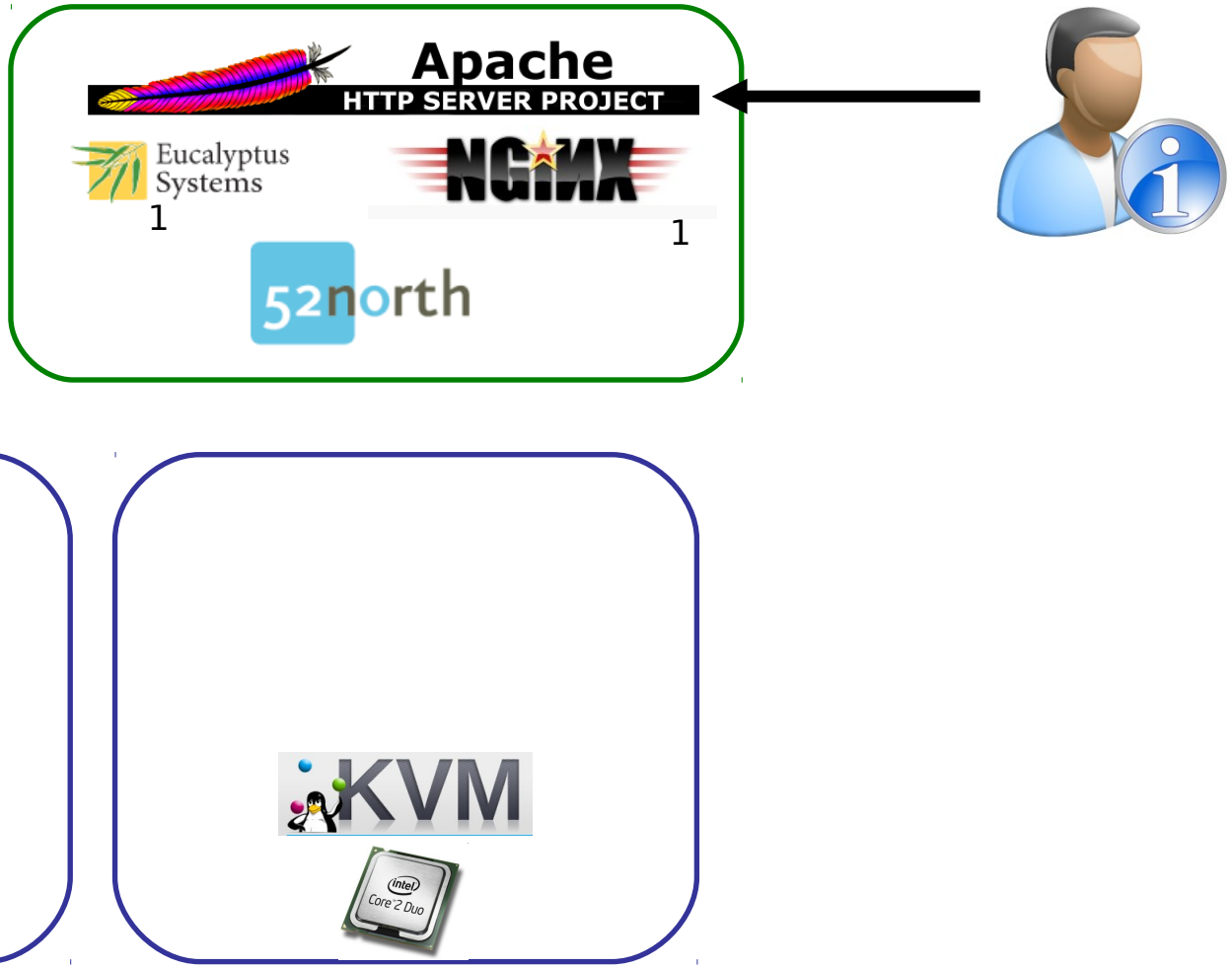
Big Picture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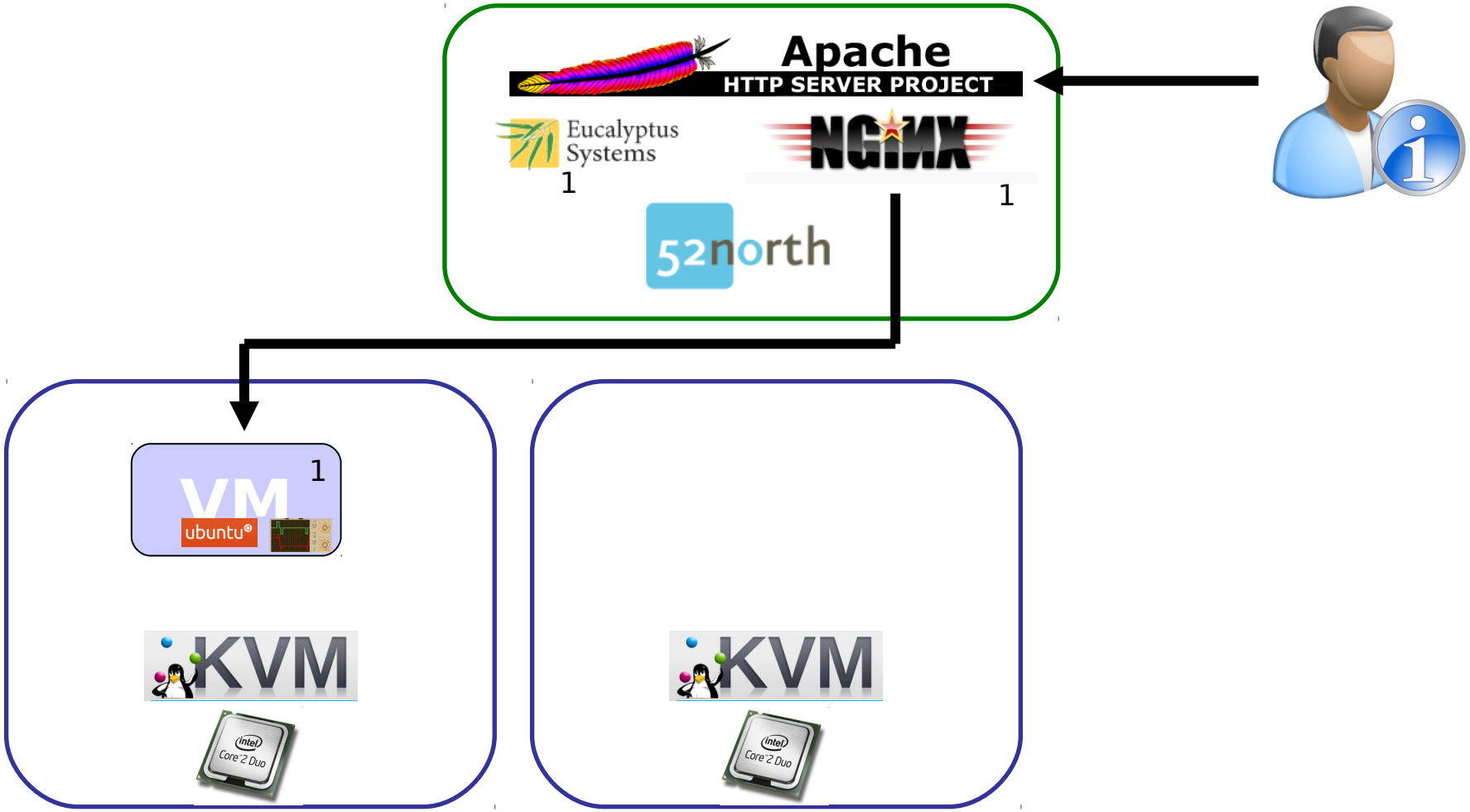
Big Picture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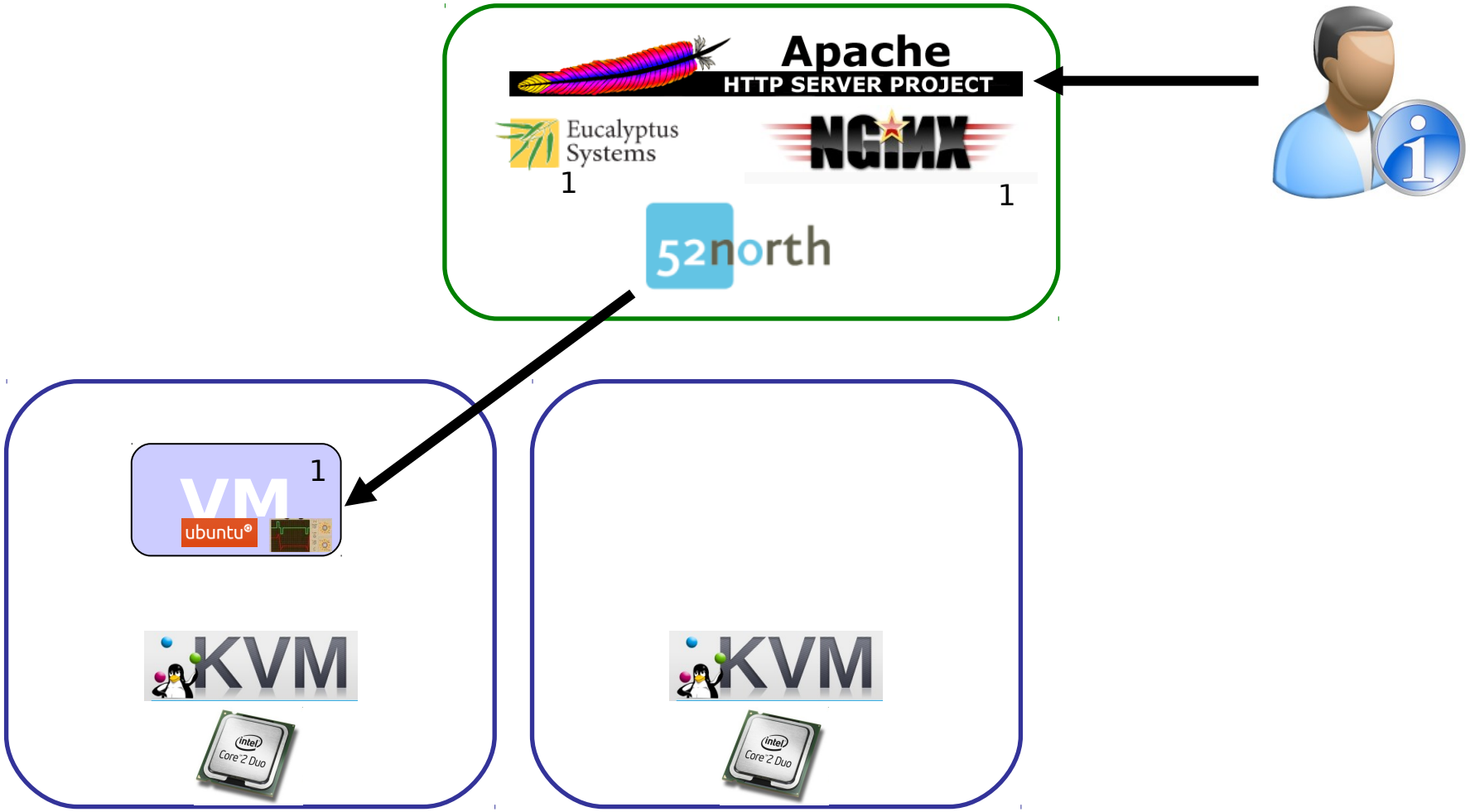
Big Picture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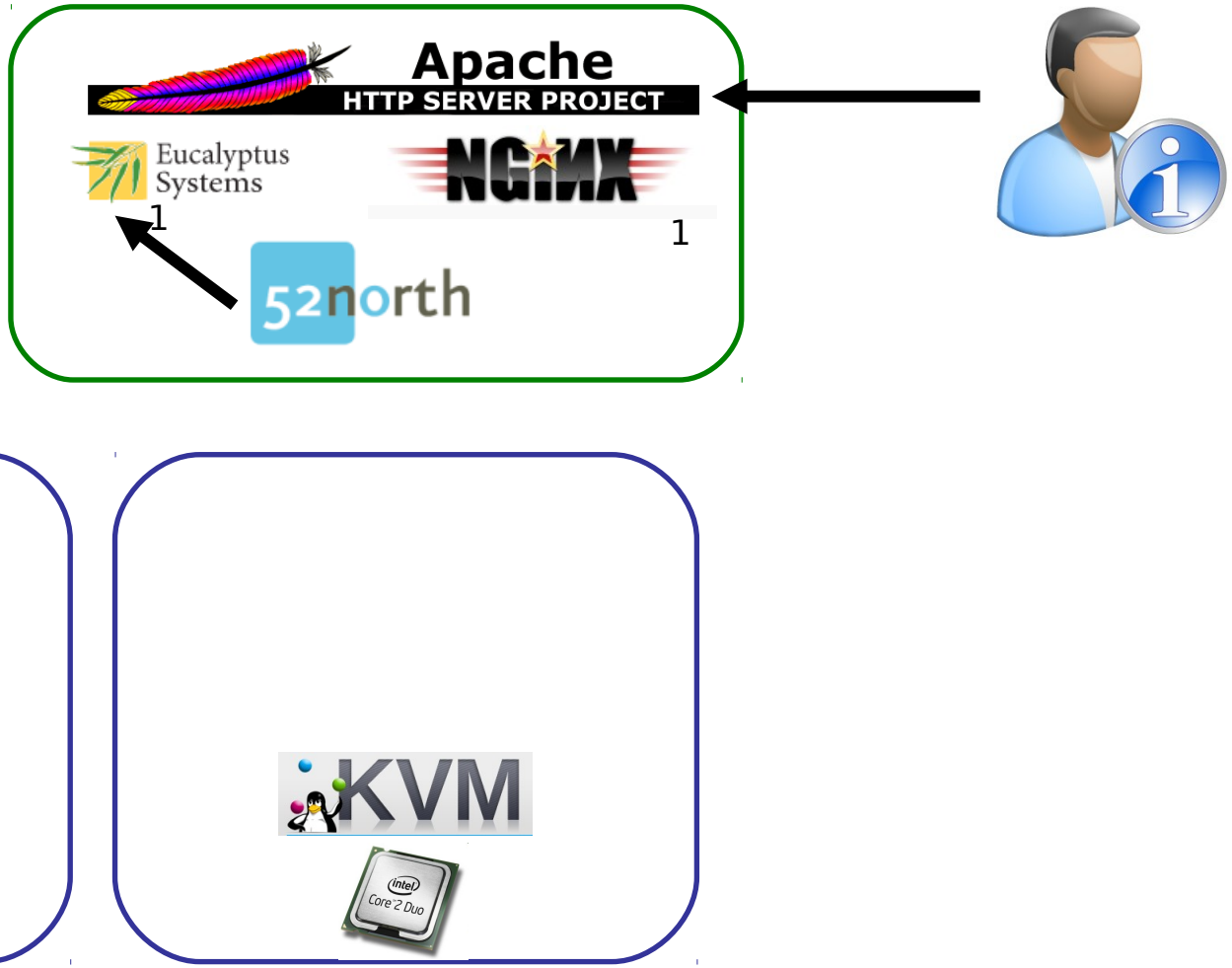
Big Picture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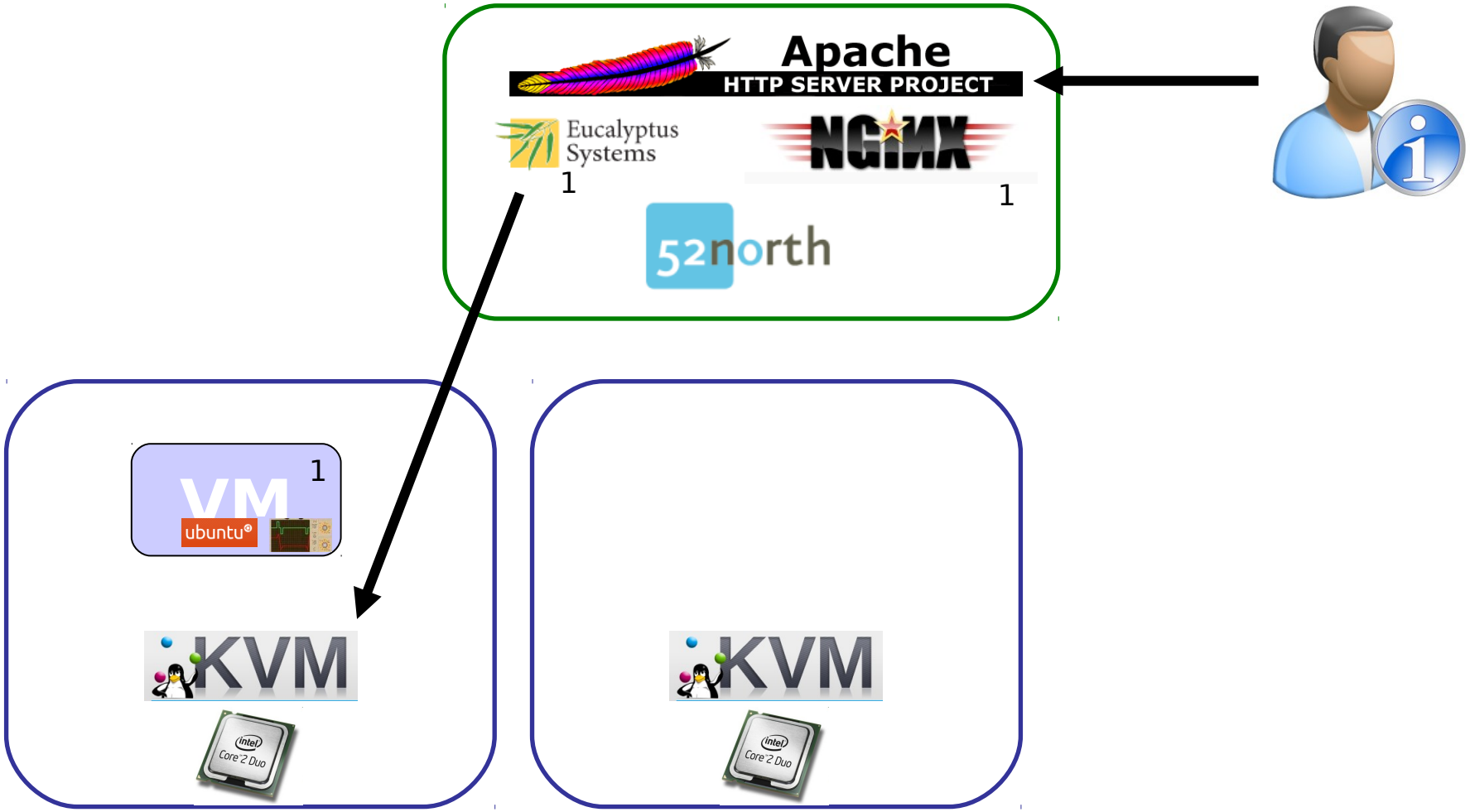
Big Picture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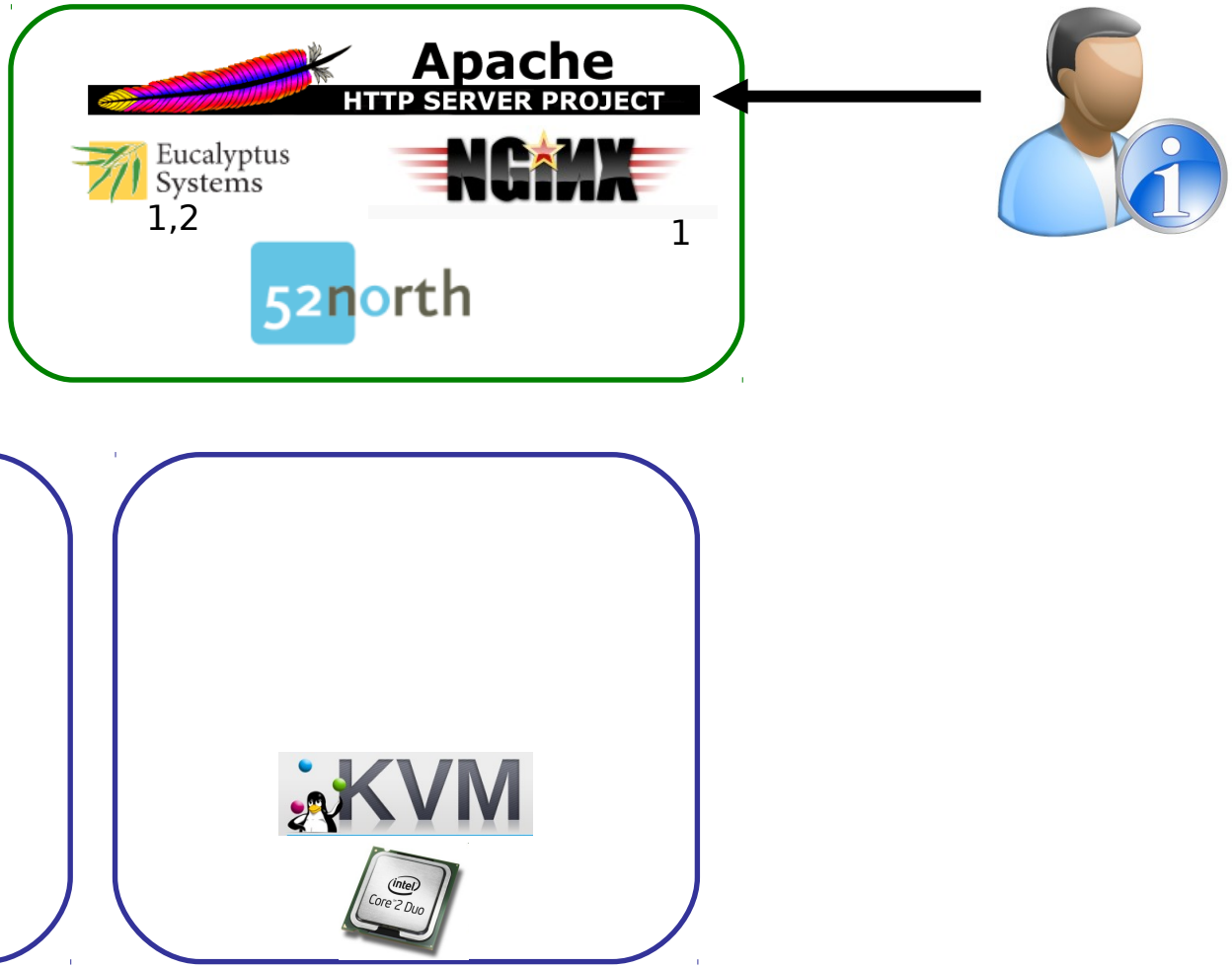
Big Picture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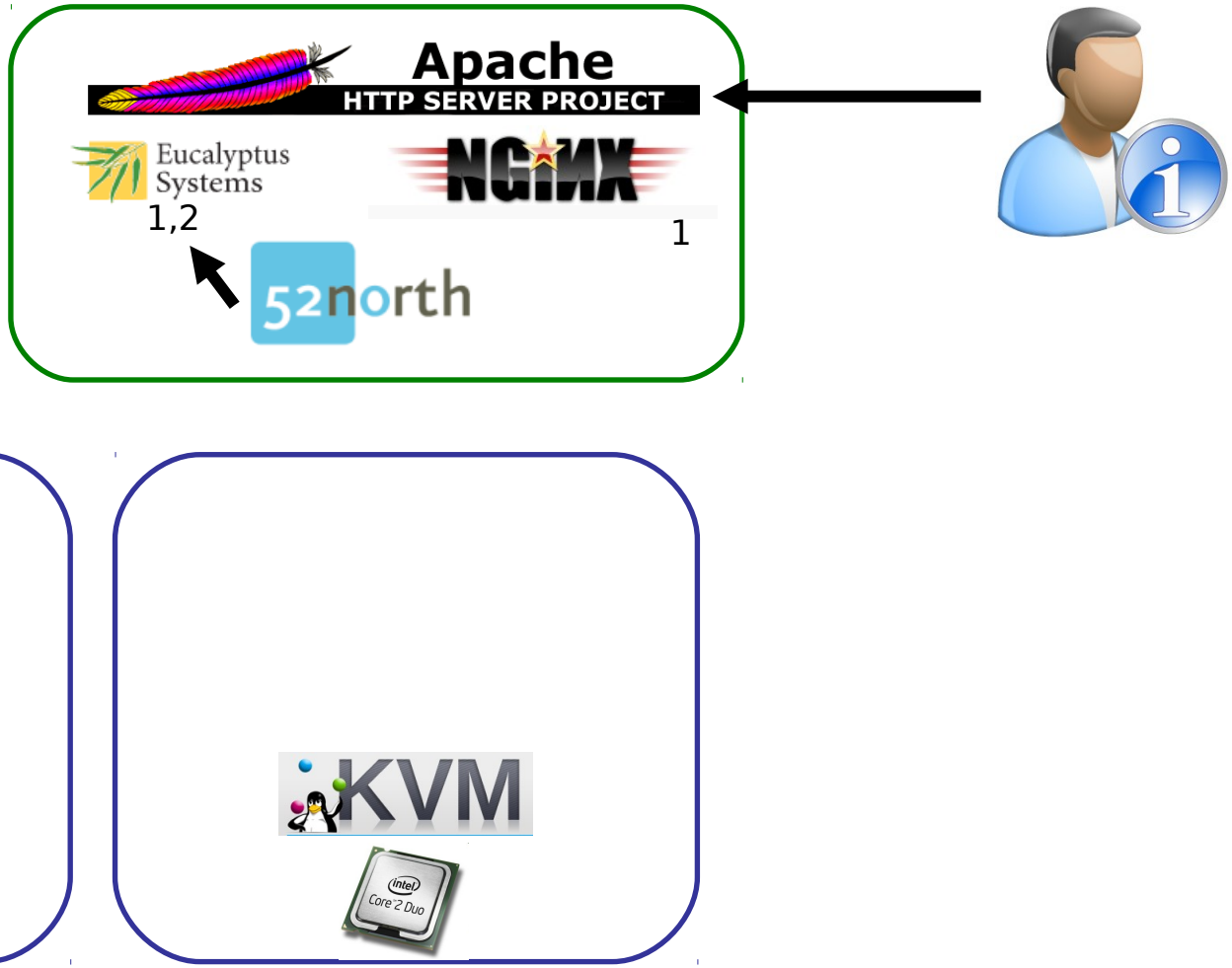
Big Picture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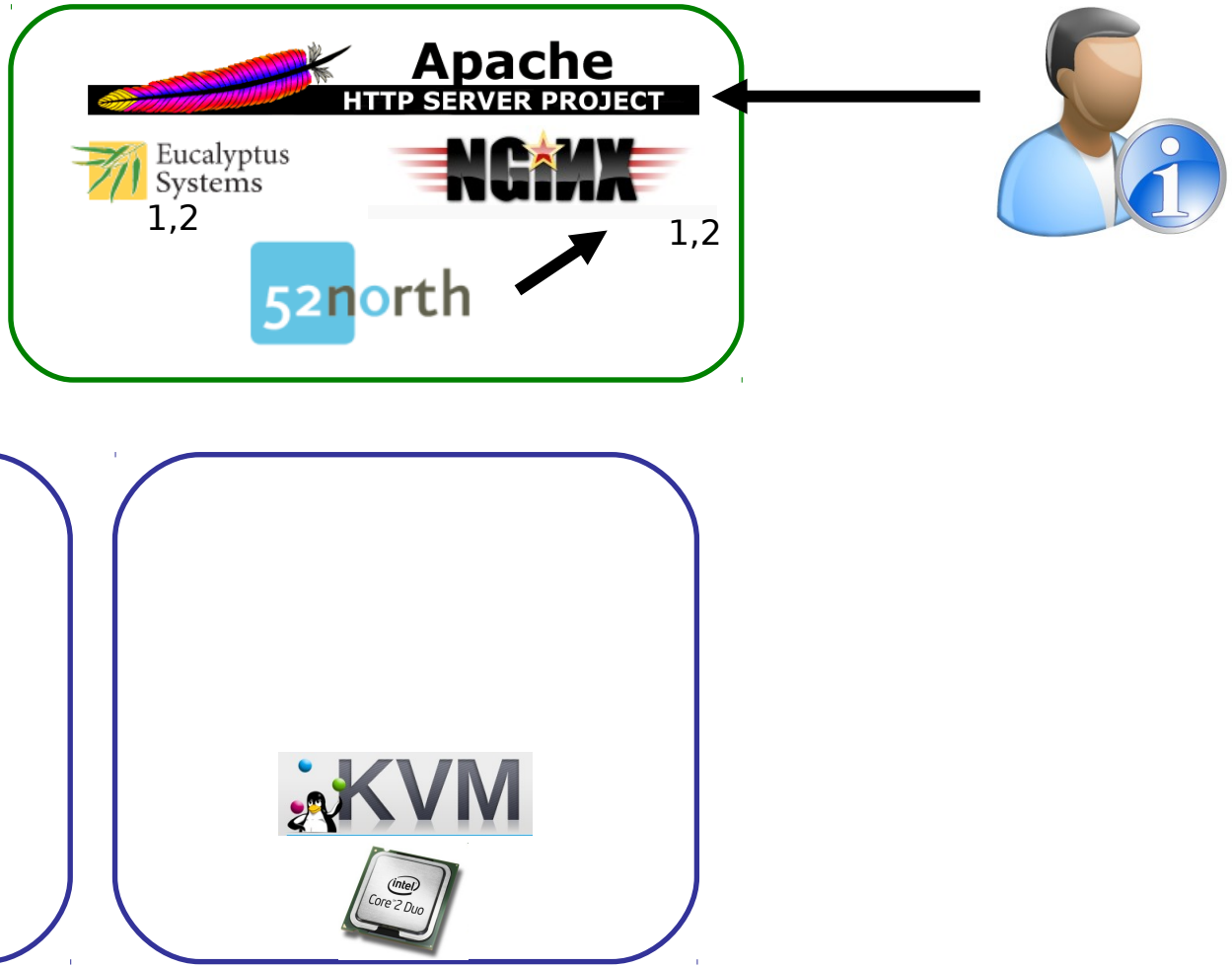
Big Picture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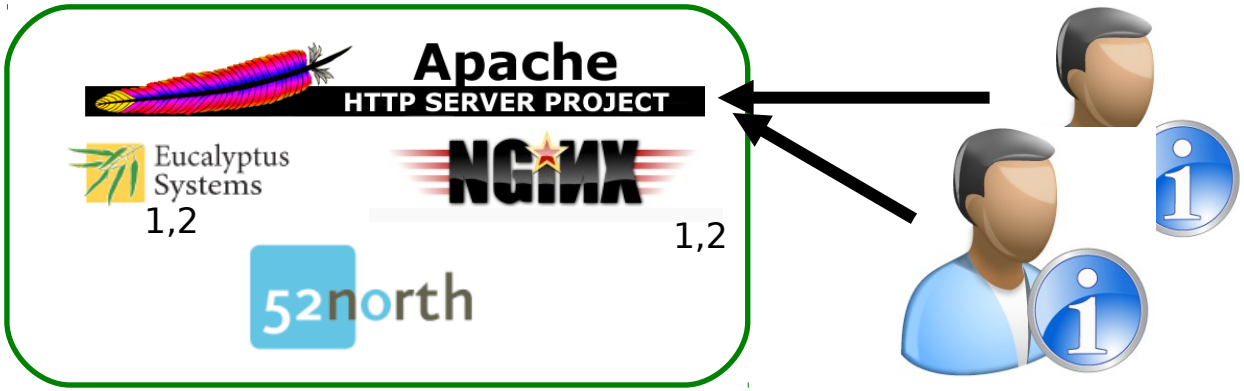
Big Picture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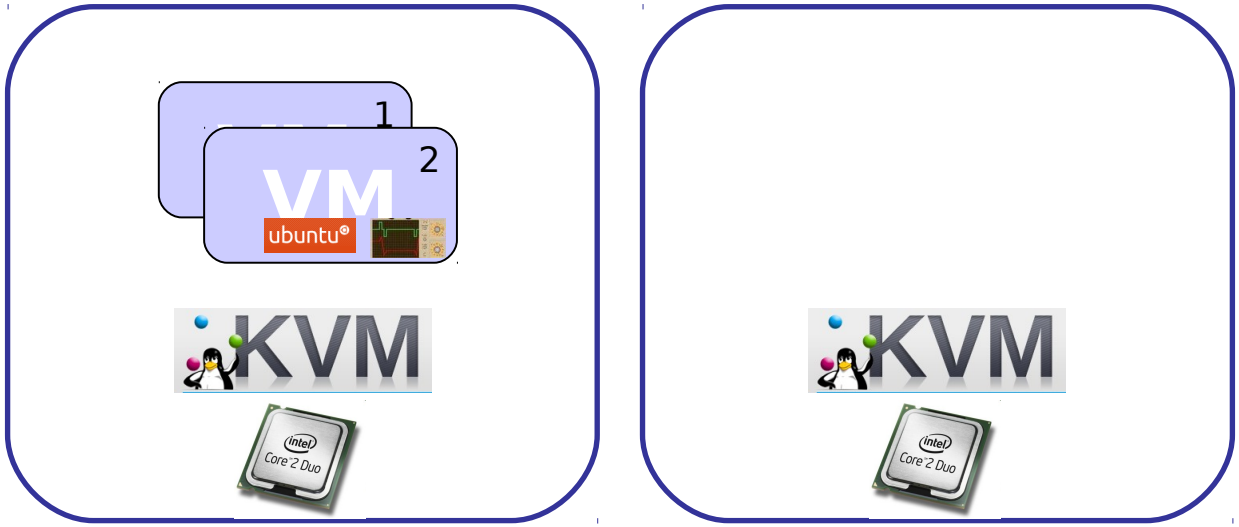
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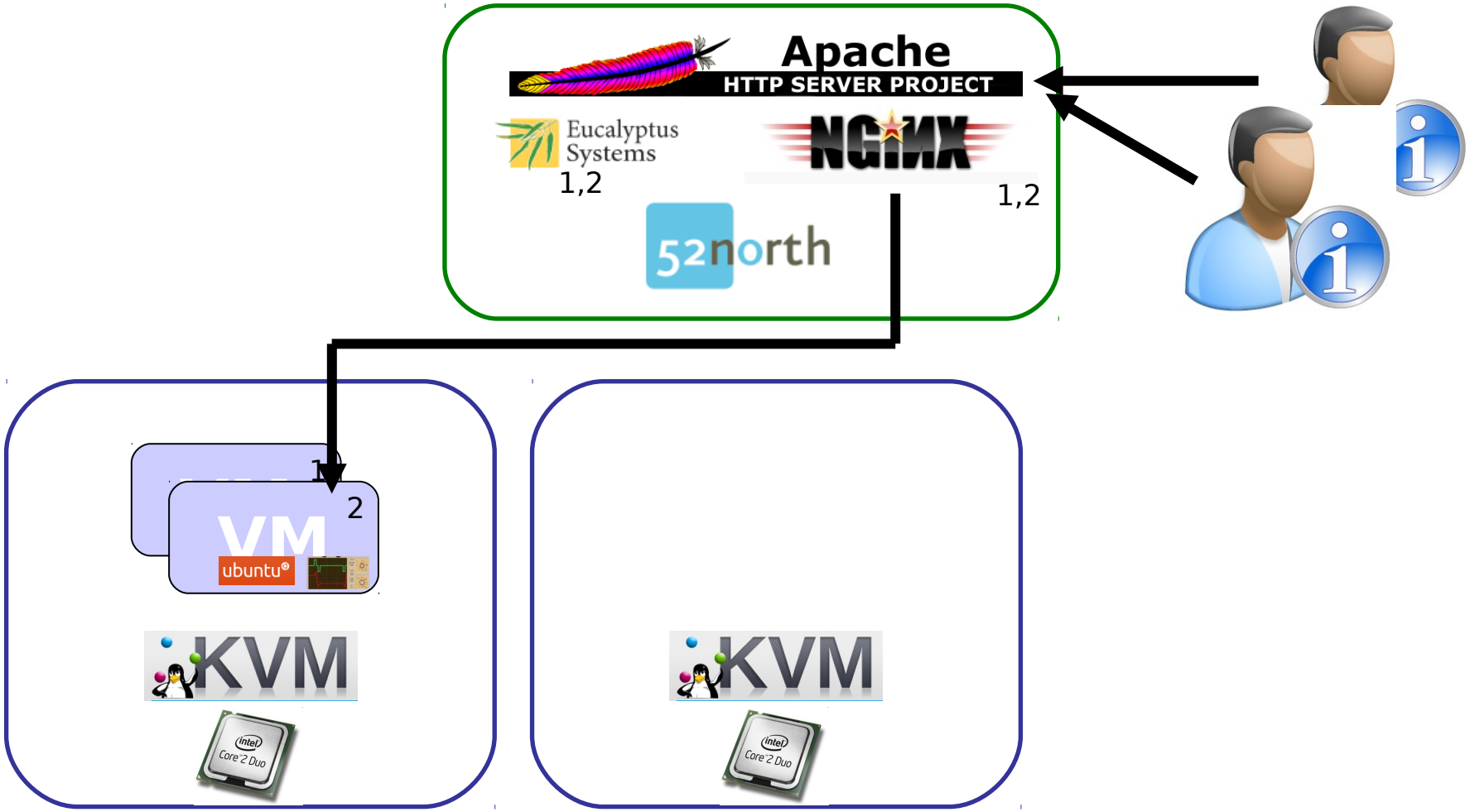
Core 2 Duo

Big Picture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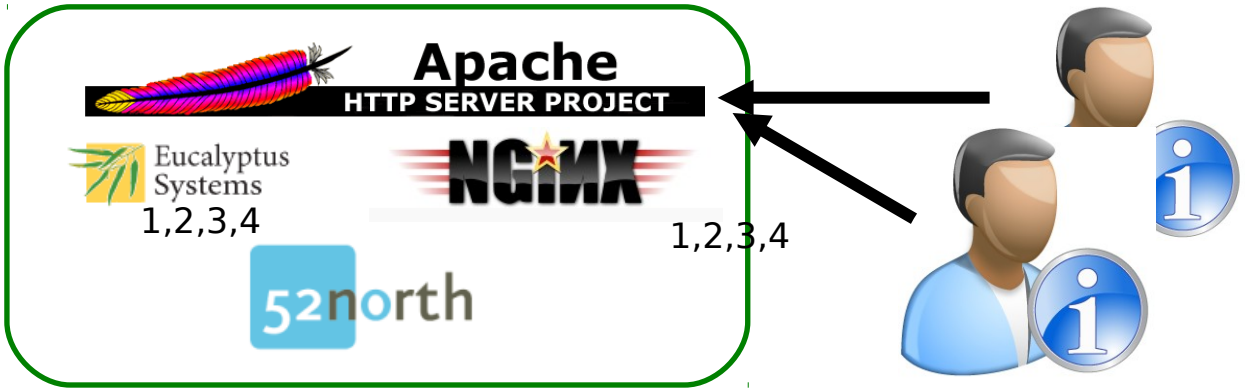
Big Picture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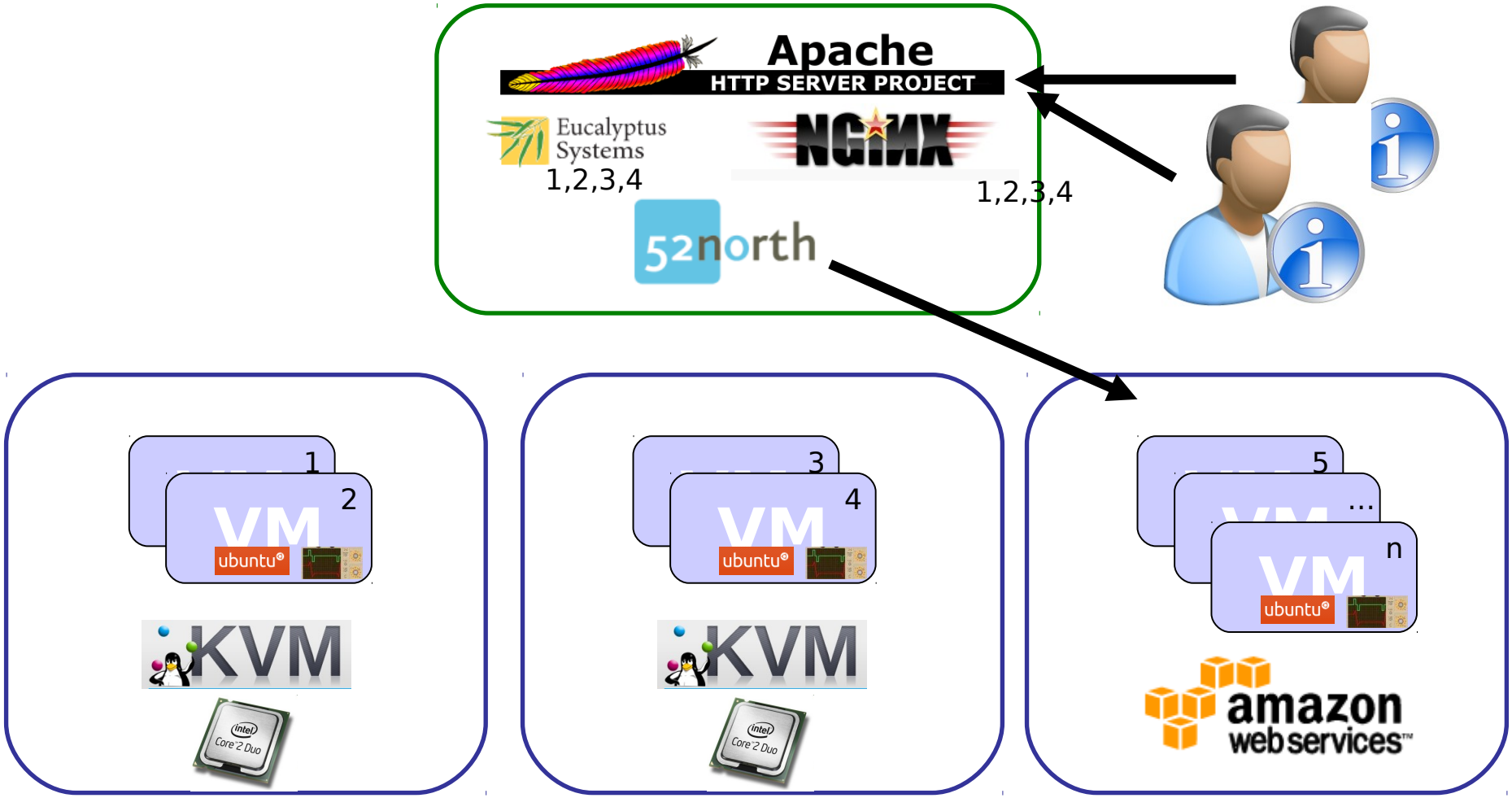
intel Core 2 Duo

Big Picture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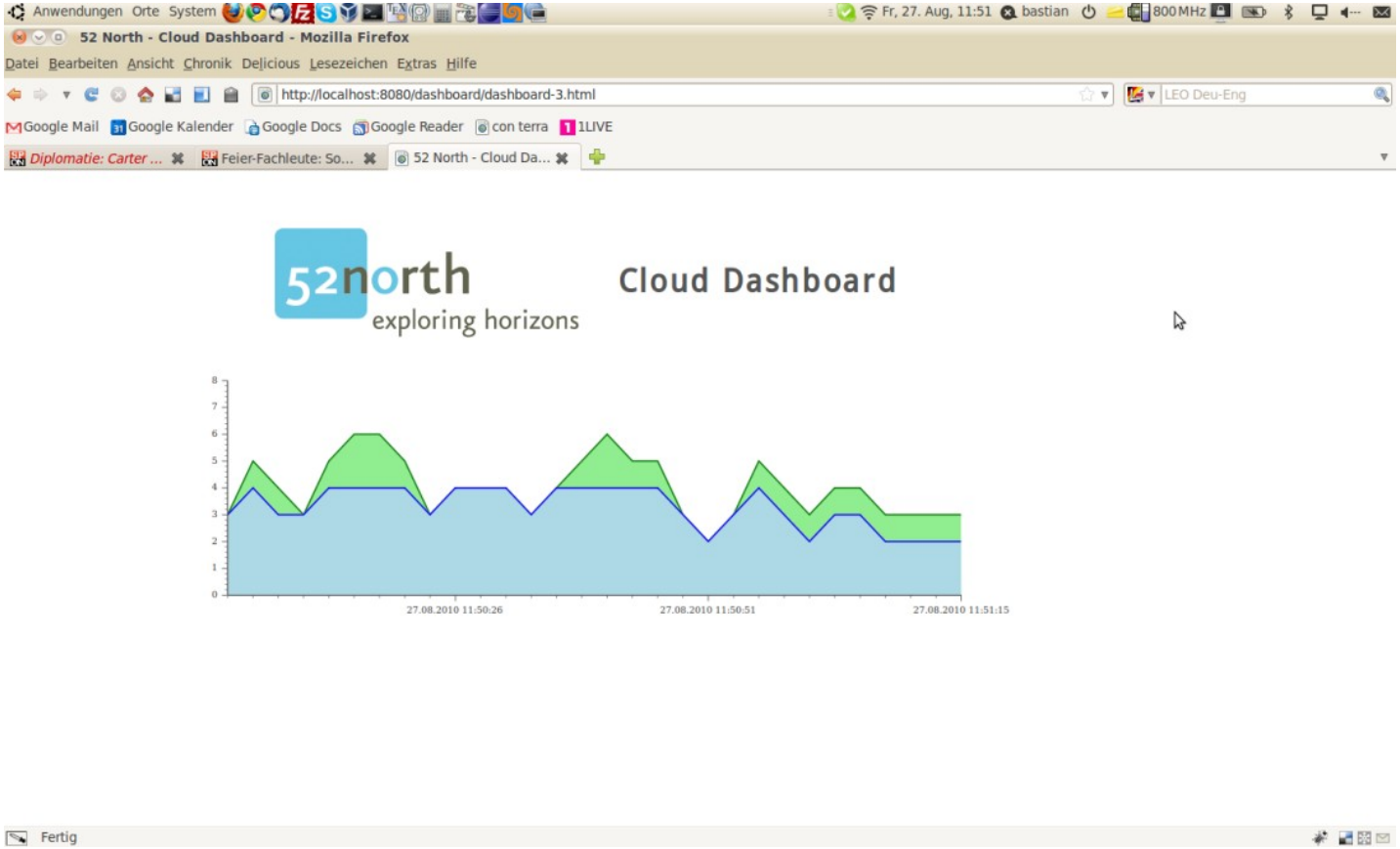
amazon web services

Dashboard


Anwendungen Orte System
Fr, 27. Aug, 11:51 bastian 800 MHz
52 North - Cloud Dashboard - Mozilla Firefox
Datei Bearbeiten Ansicht Chronik Delicious Lesezeichen Extras Hilfe
http://localhost:8080/dashboard/dashboard-3.html
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Google Mail Google Kalender Google Docs Google Reader con terra 1LIVE
Diplomatie: Carter ... Feier-Fachleute: So... 52 North - Cloud Da...
52north exploring horizons
Cloud Dashboard
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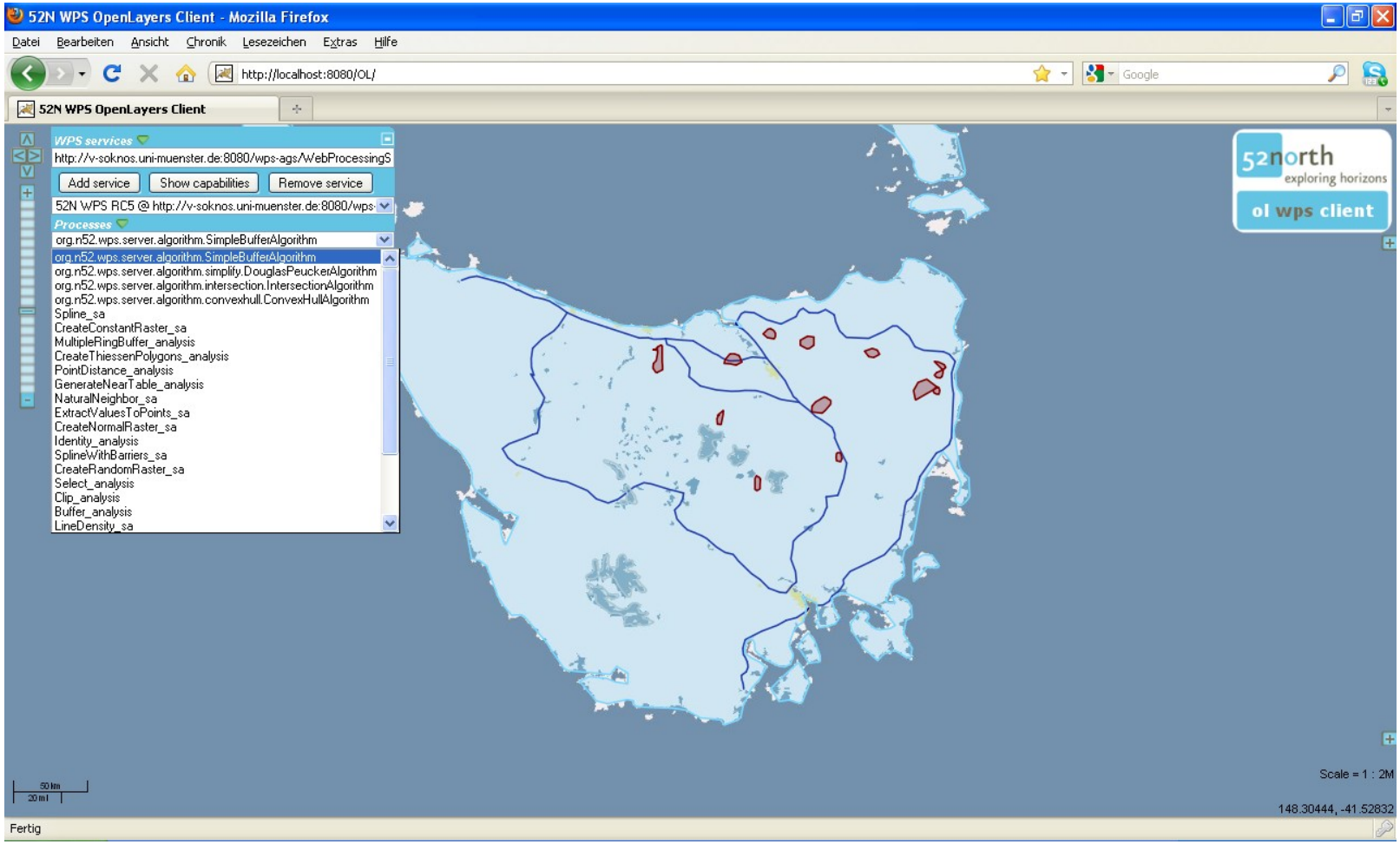
Fertig

Transparent



52north exploring horizons

Summary

- Hybrid Cloud Evolution
- Cost effective and elastic setup
- Scaleable
- Transparent
- Manageable

Future Work

- Performance Tests
- ROI/Break Even