A new Name Server Infrastructure for .de …

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Nairobi 2010, ICANN ccNSO Meeting

Starting point

Some 13.5 million domains and an average of some 9 billion queries a day being served, but …

- **query load grows** steadily and specified performance buffer limits are not met by every location

- simply adding additional hardware would lead to inappropriate heterogenity and thus to **costly error-prone maintanance** processes

- a maintanance process is desired that caters for both simple and fast adoptions, necessary because of

  - even more load / scaling needs
  - additional zones to be served
  - defective hardware

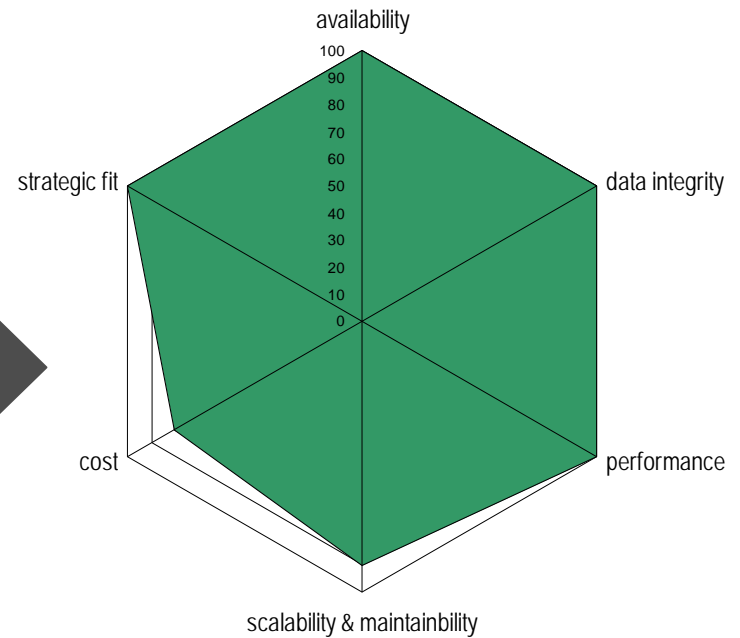➡ Setup enhanced architecture, new equipment and optimized processes

Design critera by priority

1. availability and data integrity
2. performance
3. scalability
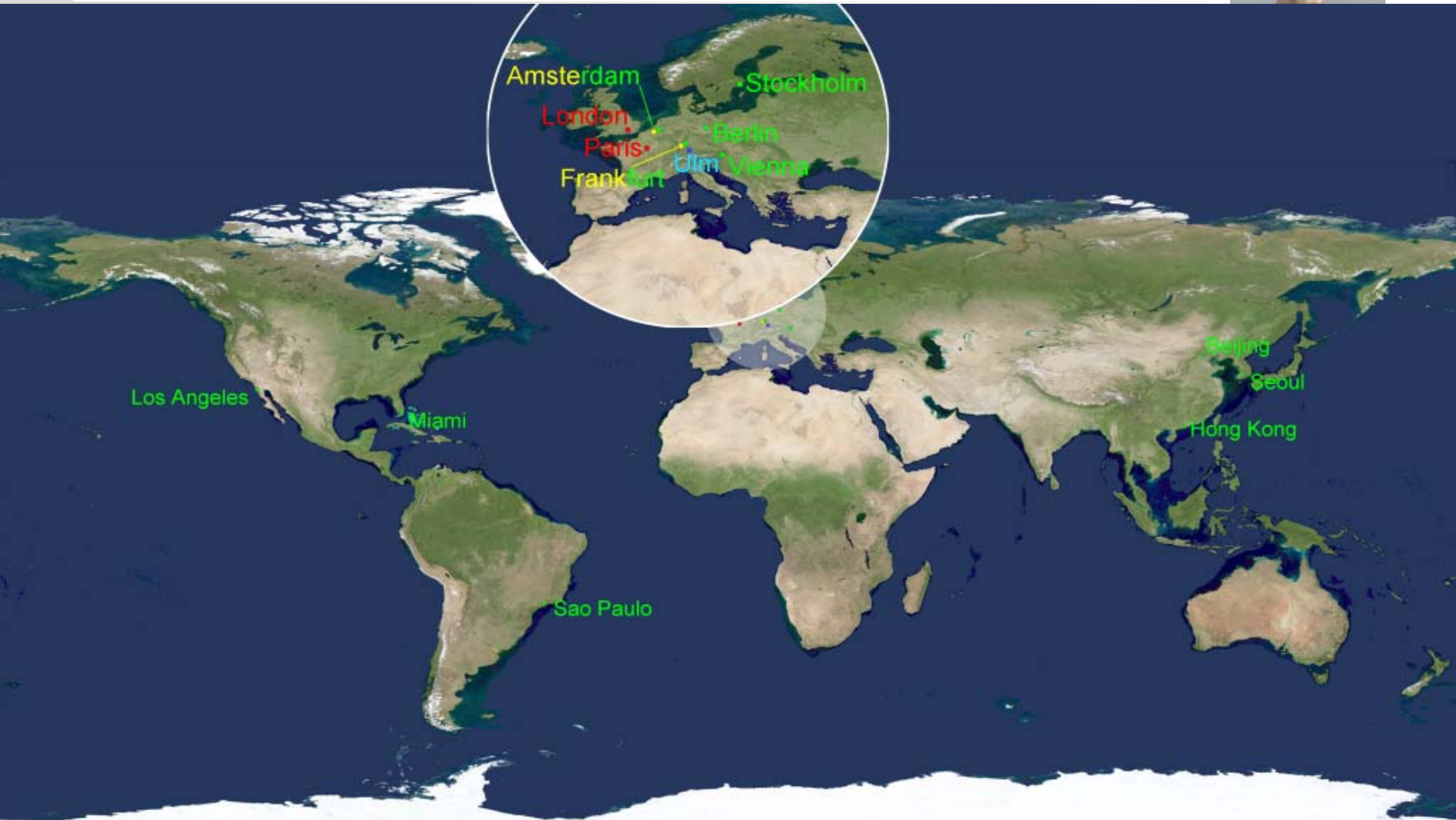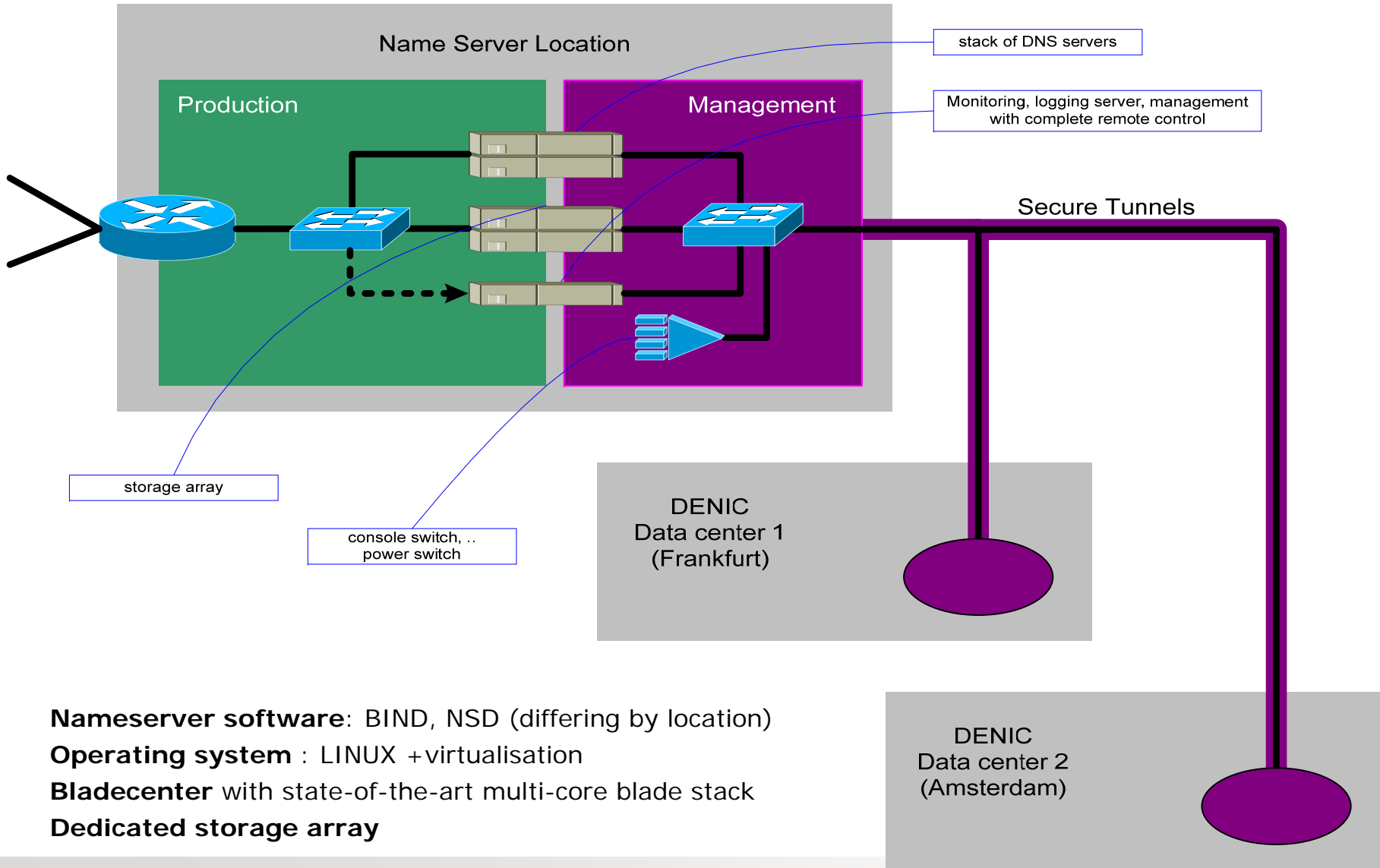4. strategic fit
5. cost and maintainability
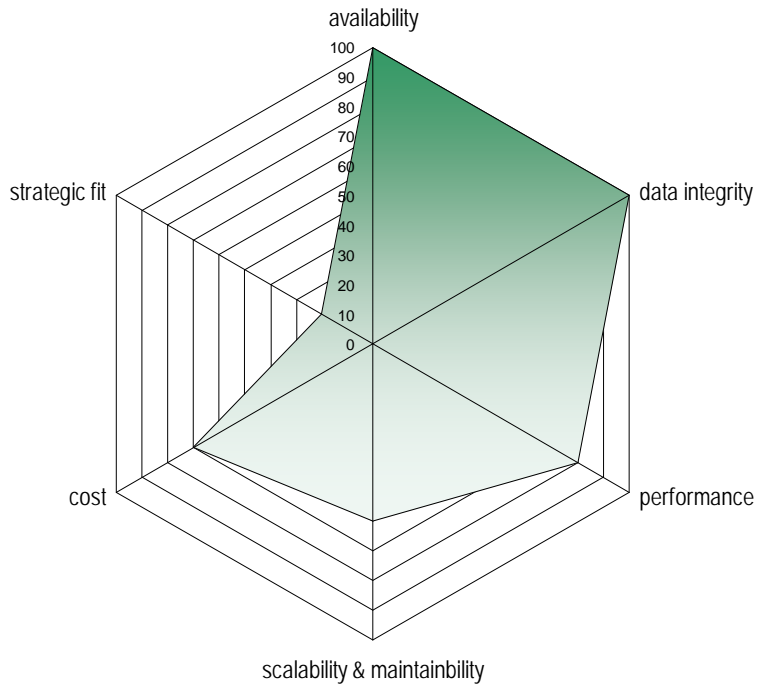
← 2010

2010 →

Legend:

anycast cloud locations

unicast locations, provider local anycast partners;   dual locations uni-/anycast

Name Server Location

stack of DNS servers

Production

Management

Monitoring, logging server, management
with complete remote control

Secure Tunnels

storage array

console switch, ..
power switch

DENIC
Data center 1
(Frankfurt)

DENIC
Data center 2
(Amsterdam)

Nameserver software: BIND, NSD (differing by location)

Operating system : LINUX +virtualisation
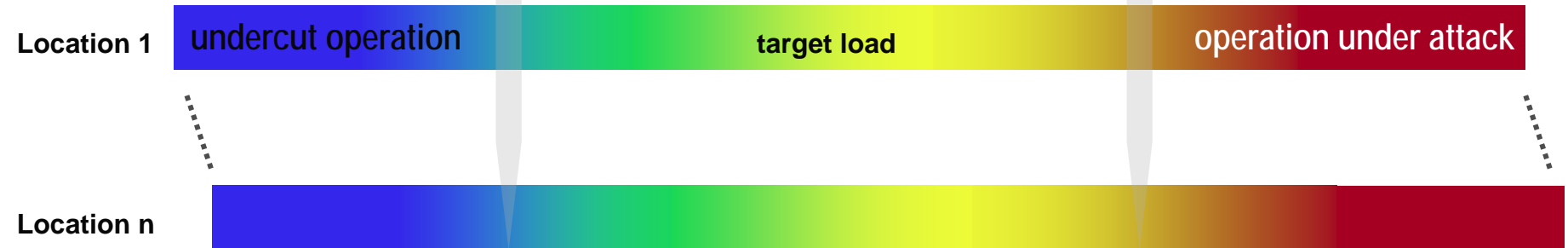
Bladecenter with state-of-the-art multi-core blade stack

Dedicated storage array

DENIC

cost
break-even
< 10 %

triggers
update
> 30 %

Location 1 | undercut operation   **target load**   operation under attack

Location n

➔ **max overall query load > 3 million q/sec, some 250 billion queries a day**

DENIC has been operating its name server infrastructure for over a decade and has a proven excellent track record of availability and response time

We are **offering** our **name server infrastructure to other ccTLD's**

- based on a cost sharing model   ➔ decrease expediture

- to serve the community with an independent neutral DNS delivery ➔ (pre-)answer governmental inquiries

- providing top level security, stability,resiliance and performance ➔ reliability

☺ **Primary or Backup DNS Service**

Please contact me or DENIC to setup a project to built a name service according to your needs like for example .at has done recently.
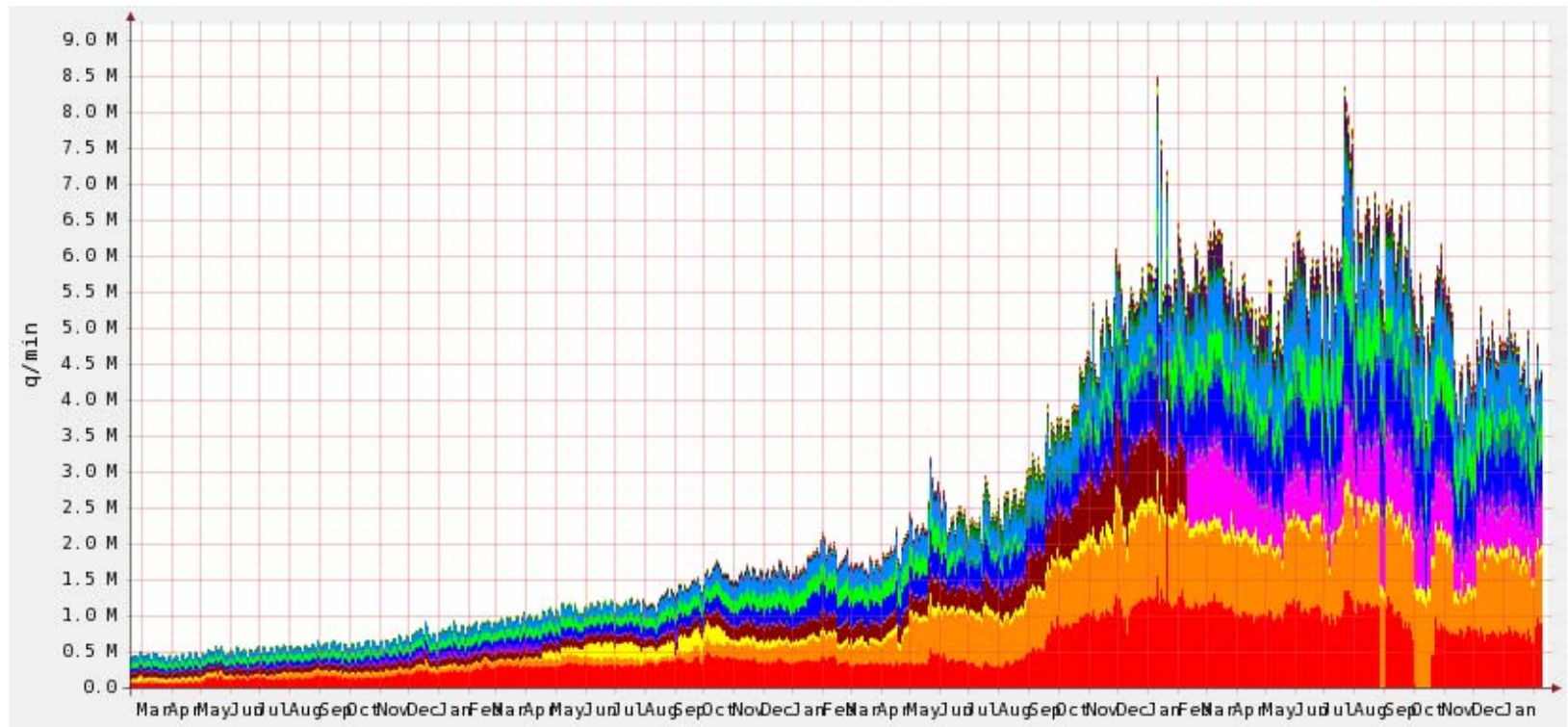
… even more locations are in preparation …

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.de query load (4 years overview until Januar 2010)

max. query load: ~ 8.5 million q/min
average query load recently: ~ 6 million q/min