



Internet Performance Measurement Research at KAIST

2008.8.25.

Future Internet Summer Camp
Measurement Session II

Sue Moon

Pre-2003

- Prof. Kilnam Chon's Group
 - Built Internet in Korea
 - Hosted CAIDA Skitter
 - Graduates
 - Hyunchul Kim
 - Jaeyeon Jung (now at Intel Research in Seattle)
 - Dongman Lee

Past 5 Years

- 4 DAGMONs installed in 2003
- 4 PlanetLab nodes installed in 2003 and used mostly for class projects

- RouteView/RIPE data analysis
- Automatic application signature generation
- WiBro performance analysis
- Social Network Analysis

Ongoing Work

- Social Network Analysis
- CASFI DSP
- Internet Sibilla
- 10 Years of Evolution
- Mobile PlanetLab

Motivations behind OSN Analysis

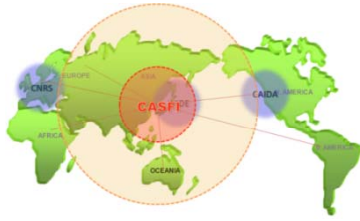
- Emergence of online social networking services drew much attention in CS
- OSN poses challenges/opportunities in
 - malware epidemics
 - information diffusion
 - recommendation engine design
 - social network evolution
 - distributed system/database design and mgmt

Our Contributions

- Analysis of CyWorld Ilchon Network (WWW'07)
- Comparison of CyWorld Ilchon and Guestbook Networks (IMC'08)
- Consistent community identification (IMC'09)

Ongoing Work

- Popularity analysis of YouTube videos (IMC'07)
- IPTV user behavior analysis (IPTPS '08, IMC '08)
- Tag-based user clustering (ICWSM '09)
- Information spread on Twitter
- Community evolution of AS graphs and other networks



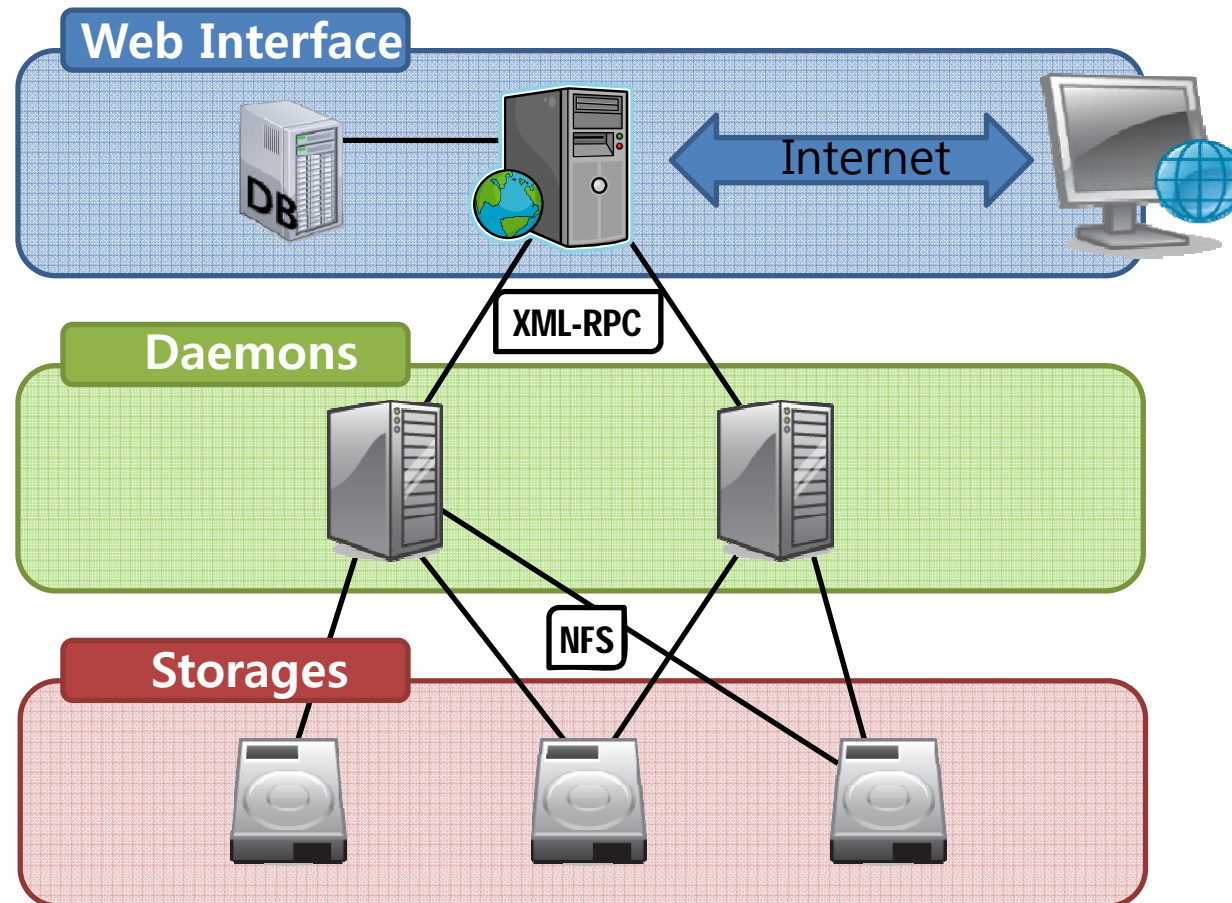
CASFI Data Sharing Platform

- Our Design Considerations
 - Make user interface simple and hide system details
 - Retain legal administrative responsibility
 - Support consistent metadata mgmt of free-format data
- Allow fine-grained access control
- Offer processing capability

Our Vision for CASFI DSP



CASFI DSP Overview



CASFI DSP Web Site Snapshot

Internet Sibilla

- Problem Statement

Given two arbitrary points x and y in the Internet, we estimate Internet forwarding $path(x, y)$, and retrieve queried measurement data on $path(x, y)$ without additional active measurements.

- Our vision is to offer measurements retrieval *as “DNS-like” Internet service: Internet SIBILLA*

“Path Stitching”

- Path and delay estimation between any pair of Internet hosts
- Key assumption:
“Many good measurement data are available already.”
- Decoupling the data collection phase from the data analysis

Key ideas behind *path stitching*

Internet separates *inter-* and *intra-domain* routing;

To predict a new path, path stitching

- » *Splits* paths into AS-path segments, and
- » *Stitches* path segments together
- » *Using* BGP routing information

10 Years of Evolution



Mobile PlanetLab
