

CDF FroNtier Deployment Plan

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CDF DB Design Meeting

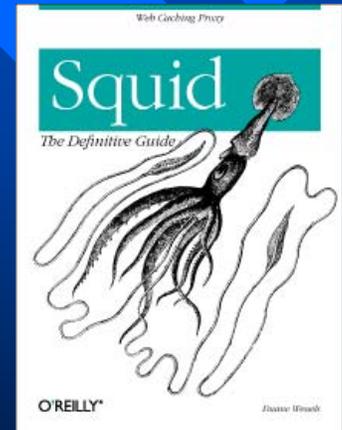
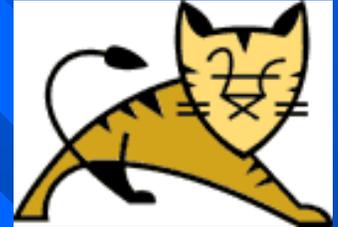
Aug 26, 2004

Outline

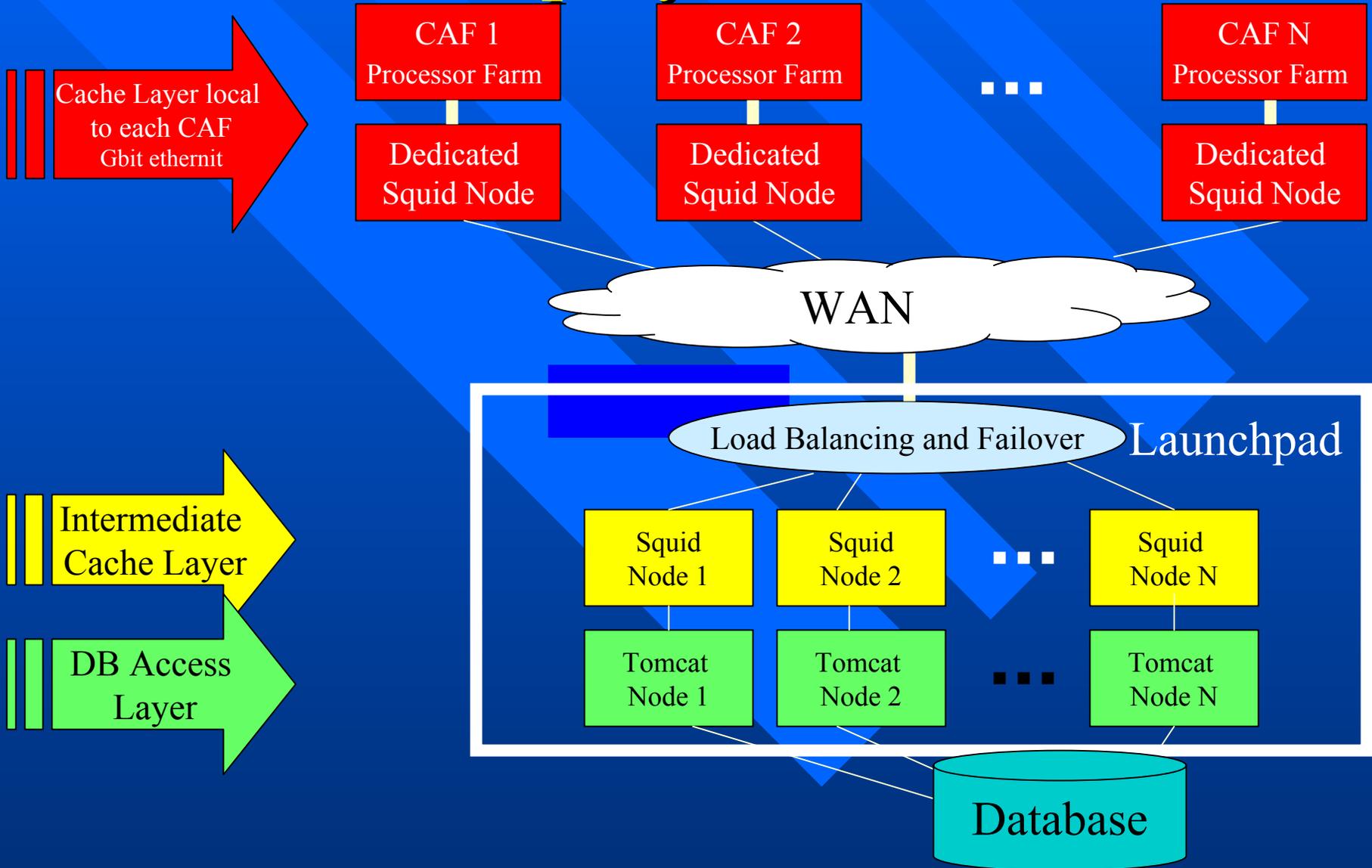
- FroNtier Overview
- Requirements for the central servers
(A.K.A. FroNtier launchpad)
- Hardware configuration details
- Application details
- Support plan

A Multi-tier Architecture

- Database (Oracle, MySQL, etc.)
- Database Access Layer
 - Tomcat: servlet management engine
 - JDBC: Database connection
 - Database Connection pool management
- Caching and proxy layer
 - Squid: well known, widely used, highly configurable, caching proxy server
- Client:
 - Transport protocol is HTTP
 - Client API provided for easy interface
 - Packaged in client library distributed in FNKIT as SO library.



General Deployment Overview



Launchpad Requirements

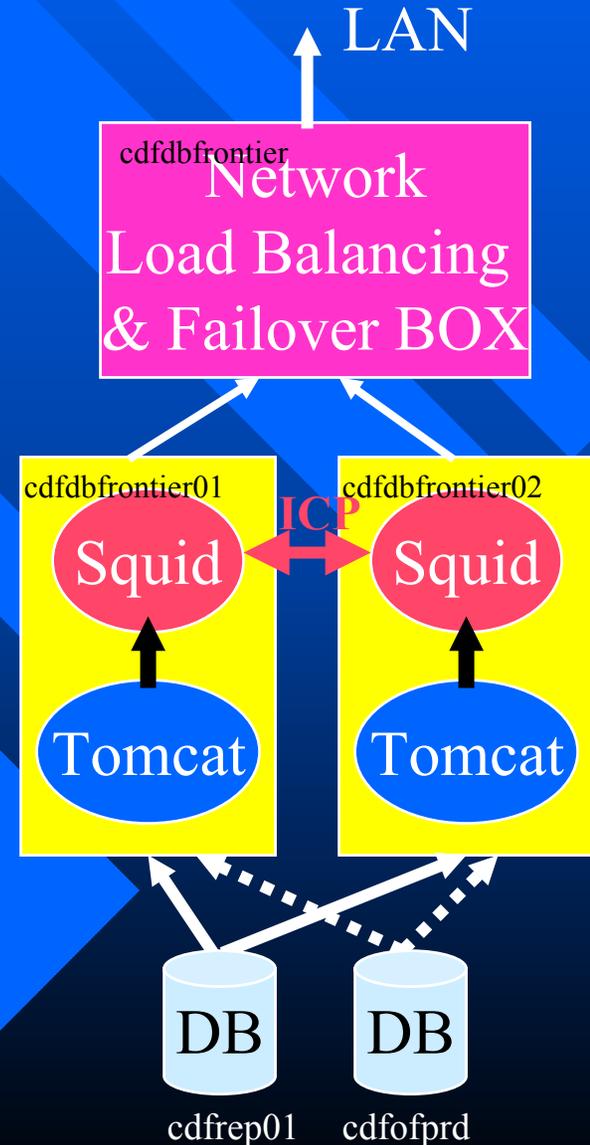
- **Reliability:** High Availability (24/7) system.
- **Server:** Must provide adequate CPU, Memory to support Tomcat and Squid services.
- **Storage:** Must provide adequate disk storage for caching all CDF Calibration DB objects (20 GB). Disk throughput > network throughput.
- **Network:** High throughput network connections (1 GB or greater) to strategic CDF parts of the FNAL LAN, and WAN for frontier client access. High throughput connections (1 GB or greater) to the CDF Database machines.

Testbed Launchpad

- 6 PCs:
 - 2x500MHz PentiumIII CPUs
 - 512MB RAM
 - 6GB IDE HDD + 2 18GB IDE HDDs
 - Intel(R) PRO/100 Ethernet
 - OS: Fermi Linux (Red Hat Linux 3.2.3-20)
- 1 PC (hostname pox):
 - 1830MHz AMD AthlonXP 2500+ CPU
 - 512MB RAM
 - 80GB IDE HDD UDMA100
 - National Semiconductor DP83820 10/100/1000 Ethernet
 - OS: Fermi Linux (Red Hat Linux 7.3 2.96-113)

Launchpad Hardware Details

- Two dbfrontier servers each run one instance of Tomcat, and Squid.
Choice: DELL Power Edge 2650
 - Dual system disks
 - Raid 5 Data disks (3)
 - Dual CPU Xeon 3.06GHz
 - 6GB Memory
 - Dual network interfaces
 - Dual Redundant Power supplies
- Load balancing and failover managed by network “BOX”
- DB failover is managed through TNS names



Launchpad Software Details

- Tomcat v5.0.27 is used for servlet engine
- Frontier servlet is built with ANT and deployed with Tomcat infrastructure tools.
- CDF “Java templates” are used, by codegen to
 1. Generate the client code which uses frontier client library.
 2. Generate the XML Servlet Descriptors (XSD)
 - XSDs are used by the servlet to map client requests into DB queries, etc.
 - Configuration management of the XSD’s is done using the Oracle DB.
- Squid v2.5 STABLE is configured on the launchpad in accelerator mode.

CAF, DCAF, Laptop, etc.

- Squid is required for high load installations (like CAF and DCAF)
- Squid v2.5_STABLE is available from the squid-cache.org site (or from Frontier site (?)). Instructions are posted on the Frontier wiki page. Using squid build procedure optimizes the installation for each specific machine.
- The squid.conf file must be setup as directed in the Frontier instructions.
- Two environment variables are provided for each CAF site and managed by CAF administrators: FRONTIER_SERVER_n (n=1-4), and FRONTIER_PROXY_n (n=1-4). The “n” is used for failover servers/proxies where applicable.

Support Plan

- The launchpad hardware configuration has been designed to be stable, redundant, and reliable. It should not be a major support load. Needs a group to be in charge.
- The software on the launchpad has been reliable in our testing. The Frontier group will continue production responsibility for several months. Can then be turned over to support group.
- Squid at remote sites is the responsibility of the remote admin people. Frontier team will help set up and configure as needed.
- A monitoring system is in place and Frontier team will watch this to assure the system is working well. Will turn over to CDF when/as appropriate.