One of the most powerful tools on earth, let's unravel the curtains and dig inside Google....

<u>Exterior Network **Security** (What's Known)</u>

DNS Load Balanced : Splits traffic

Firewall filters traffic (smtp, POP)

NetScalar Load Balancers:

take requests from FW blocks and

DOS attacks, ping floods. Also blocks non IPv4/6 and some specific ports

Squid: The user requested information...HUGE CACHE (Reverse Proxy)

GWS : If info isn't in cache...then its sent here, running on a custom C++

server)

Data Center

Over 36 data centers around the world and in 2011, Google has had a

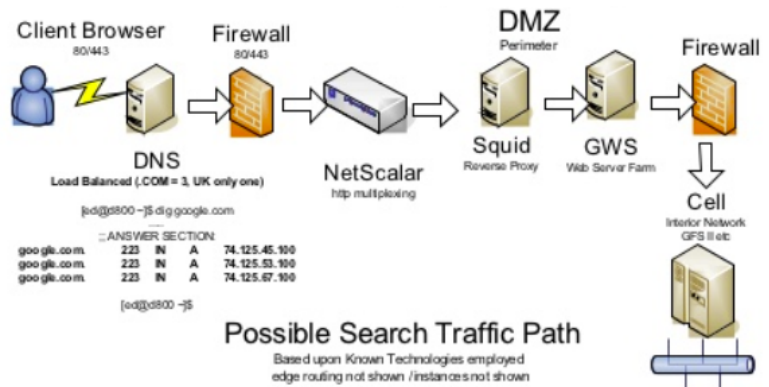reported storage capacity of over 5 Petabytes.

Standard data center holds 1160 servers in 30 racks.

The Custom Servers

The servers are all custom, 1/3rd the size of a normal 1 then switched over to

the 2 racks (2U) but remain custom.

Motherboards directly mounted into rack, no casing

Currently using a 2-way/Dual Core/16 GB/1-2 TB SATA

Software

Google Web Servers: Runs off a custom Linux OS (Redhat Linux based)

Storage systems: Run off an in-house Google File System, BigTable, Spanner, and Google F1.

**Many different software depending on the product but those are the main ones.

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GOOGLE APP ENGINE	GOOGLE APPS SEARCH INDEX CRAWL GMAIL...
Python. Java. C++	Python, Java, C++, Sawzall, other
BigTable	GWQ
	Mapreduce BigTable Chubby Lock
GFS / GFS II	
INTERIOR NETWORK IPv6	
RHEL 2.6 .X PAE	
SERVER HARDWARE	
RACK	
DC	
Exterior Network	