



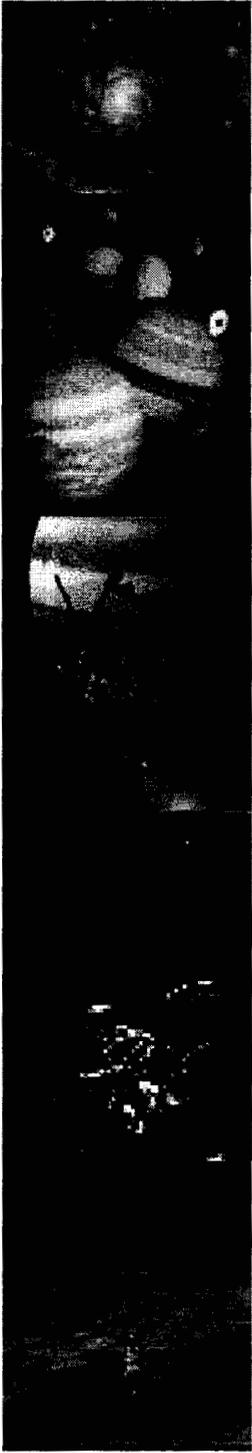
The NASA Portal

NASA's Window for the World

A Study in Successful Partnering

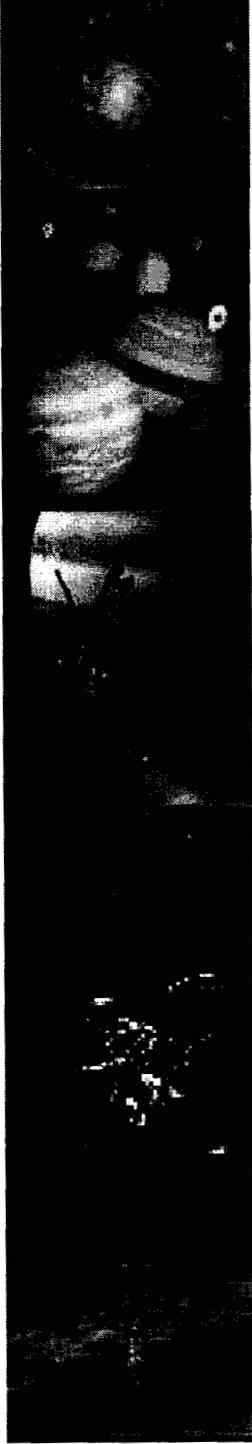
Douglas Hughes and Jeanne Holm

April 1-3, 2003



NASA Portal Team

- ◆ JPL
 - Jeanne Holm
 - Douglas Hughes
 - Jay Dyson
 - Greg Williams
 - Ellie Trevarthen
- ◆ eTouch Systems Corporation
- ◆ Critical Mass
- ◆ **AT&T**
 - Sandy Grotheer, Bill Ruvo, Kent Johnson, Paul Girardi
 - Gene Kelley, Kent Robinson, Sarina Jennings, Meg Coker
 - Brial Lampl, Mike Bouffard, Jonathan Sturges, Greg Smith
 - The entire AT&T Army including the “NOC at night”
- ◆ Oh yeah, and NASA HQ, our sponsor



The NASA Public Portal

- ◆ Was designed and intended to be a dramatic, interactive interface to NASA by the public, kids, media, educators, and students
 - To create “One NASA” on the web so the public can find what they want faster and easier
 - As a pre-eminent example of the *President’s Management Agenda’s* e-Gov initiative
 - To replace the NASA home page and tie together NASA’s public-facing web resources
- ◆ We selected the following partners to help us create the NASA portal
 - **eTouch Systems Corporation** as the prime technologists for content management and implementation
 - **Critical Mass** as the design firm focused on interactivity and usability
 - **AT&T** for the hosting and caching environment
- ◆ A dramatically different site that will engage and inspire the American public
 - Content management solution, search, information architecture, and design
 - <http://km.nasa.gov/portal-white-paper.html>

Challenges

- ◆ Our known challenges included
 - A highly competitive, two-step procurement process
 - Broad participation from industry, ranging from art firms to industrial-strength vendors
 - Madison Avenue style with industrial strength service
 - Detailed information can be found at <http://acquisition.jpl.nasa.gov/rfp/webportal/>
 - An evolving architecture, with a 4-week deadline for deployment
 - Deploying a portal that provided
 - Quick and easy navigation for our many audiences
 - A simple-to-use, highly capable content management solution
 - Interactive design and flash modules
 - Content migration from top 2600 sites on NASA's web by September 28 (encompasses ~3.5M web pages)
 - Industrial strength hosting solution to handle ~142,000 hits per day
- ◆ Our unknown challenge
 - Hours after deployment, the Columbia tragedy would occur

Schedule

- ◆ *Previously—Contractors selected and concept developed*
- ◆ January 2—Accelerated schedule from NASA Administrator
- ◆ January 6—Designed interim portal
- ◆ January 17—AT&T contract awarded (minutes to midnight)
- ◆ January 21—Educator Astronaut site live with **ICDS**
- ◆ January 31, 11:45 p.m — Deployment
- ◆ February 1—75 million hits
- ◆ February 10 - NASA CIO visits Asburn, VA IDC
 - Personally thanks AT&T team for the Agency, the Administrator and the public

NASA Portal User Interface

NASA NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Top Story or Interactive Feature [+ en Español](#)

[+ ABOUT NASA](#) [+ NEWS & FEATURES](#) [+ EVENTS](#) [+ MULTIMEDIA](#) [+ MISSIONS](#)

For Kids [➔](#)
 For Students [➔](#)
 For Educators [➔](#)
 For Media & Press [➔](#)

COLUMBIA on the Investigation. [➔](#)

FIND IT @ NASA:

 START SEARCH [➔](#)

IMPROVE LIFE HERE EXTEND LIFE TO THERE FIND LIFE BEYOND

NASA Vision

- 02.10.03 Cold Winter? El Niño? Perhaps Not [+ View feature](#)
- 02.24.04 Highway to Honor Columbia Astronaut [+ View feature](#)
- 02.20.03 Lunar Mystery Solved [+ View feature](#)
- 02.01.03 Earth Imitates Art [+ View feature](#)
- 02.18.03 Astronauts Observe Blue Clouds in Space [+ View feature](#)
- 02.19.03 Snow Gullies on Mars [+ View Feature](#)
- 02.01.03 Helping Houston Study Air Pollution [+ View feature](#)
- 02.14.03 Interactive Columbia Tribute [+ View feature](#)
- 02.11.03 Baby Pictures of the Universe [+ View feature](#)

Audiences

NASA Vision

April 1-3, 2003

NASA Portal - GSA/FTS 2003

Architecture

- ◆ February 1 architecture and capabilities
 - **Robust** hosting solution at AT&T
 - **Supported** Educator Astronaut site with ICDS
 - A priority of the NASA Administrator with support from the White House
 - **Provided** front-line access for Columbia information
 - Updated design within hours of deployment
 - Added information architecture components
 - Continuing to publish significant content
- ◆ Intelligent Content Distribution System (ICDS)
 - ICDS allowed us to withstand record traffic during the Columbia incident and still serve the public and press with excellent performance

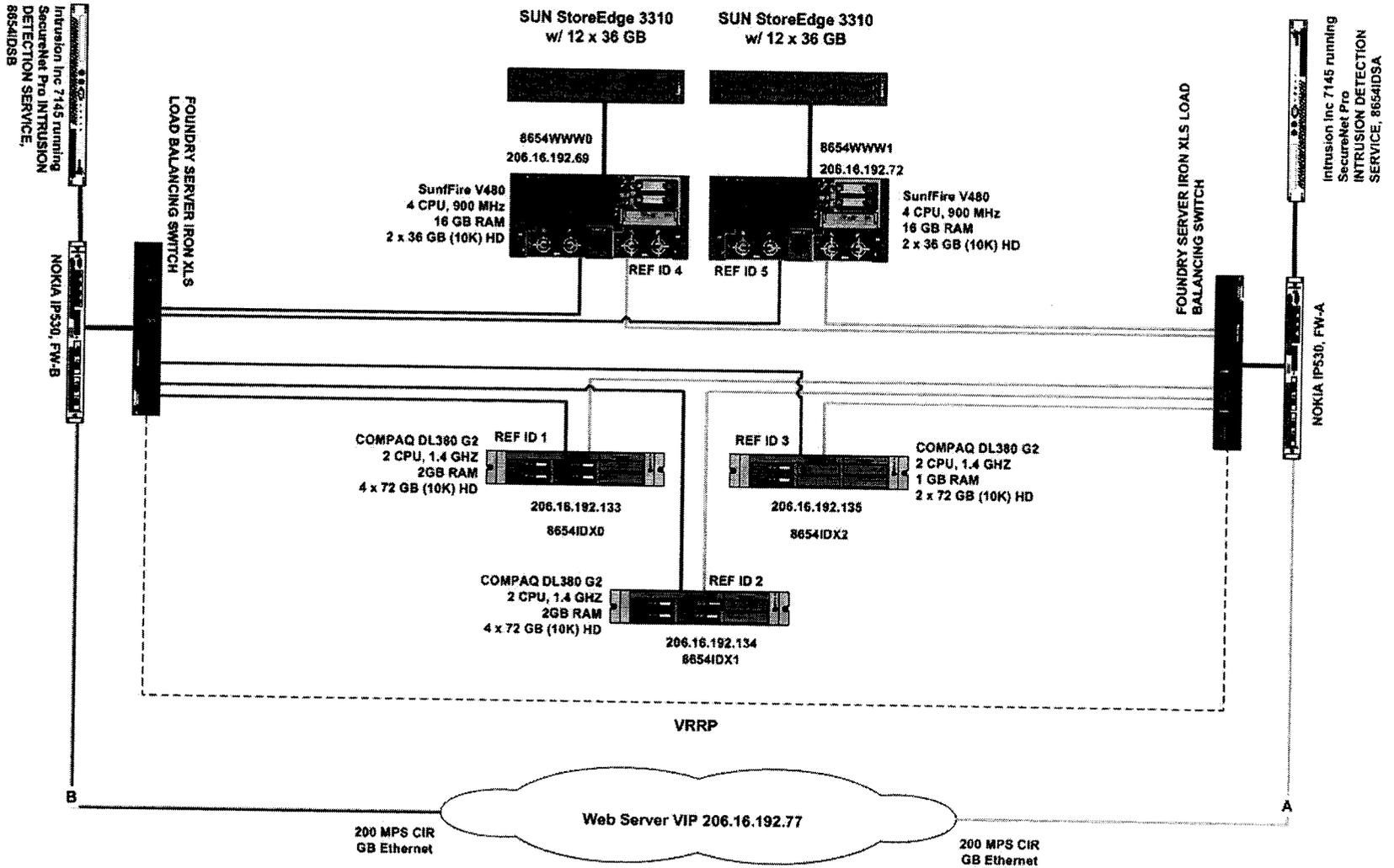
Software

- ◆ Web servers
 - Pages are flat HTML files designed for quick deployment
 - Final solution will be dynamically generated JSP files from Digital Asset Management
 - Running open-source Apache HTTP Server
 - Operating system is hardened Solaris 8
 - Security layer is IP filters, Port Sentry, and TripWire
- ◆ Search is Verity K2
 - Operating system is Windows 2000 Server

Hardware

- ◆ System runs behind the AT&T firewall, hosted at the AT&T Intelligent Data Center (IDC) in Ashburn, VA
- ◆ Caching is provided by AT&T's Intelligent Content Distribution System (ICDS)
- ◆ NASA's hardware includes
 - 2 Nokia Firewalls
 - 2 Foundry Load Balancers
 - 2 AT&T Intrusion Detection units
 - Web hosts
 - 2 Sun V480R servers
 - Search hosts
 - 3 Compaq DL 380 servers

Network Architecture

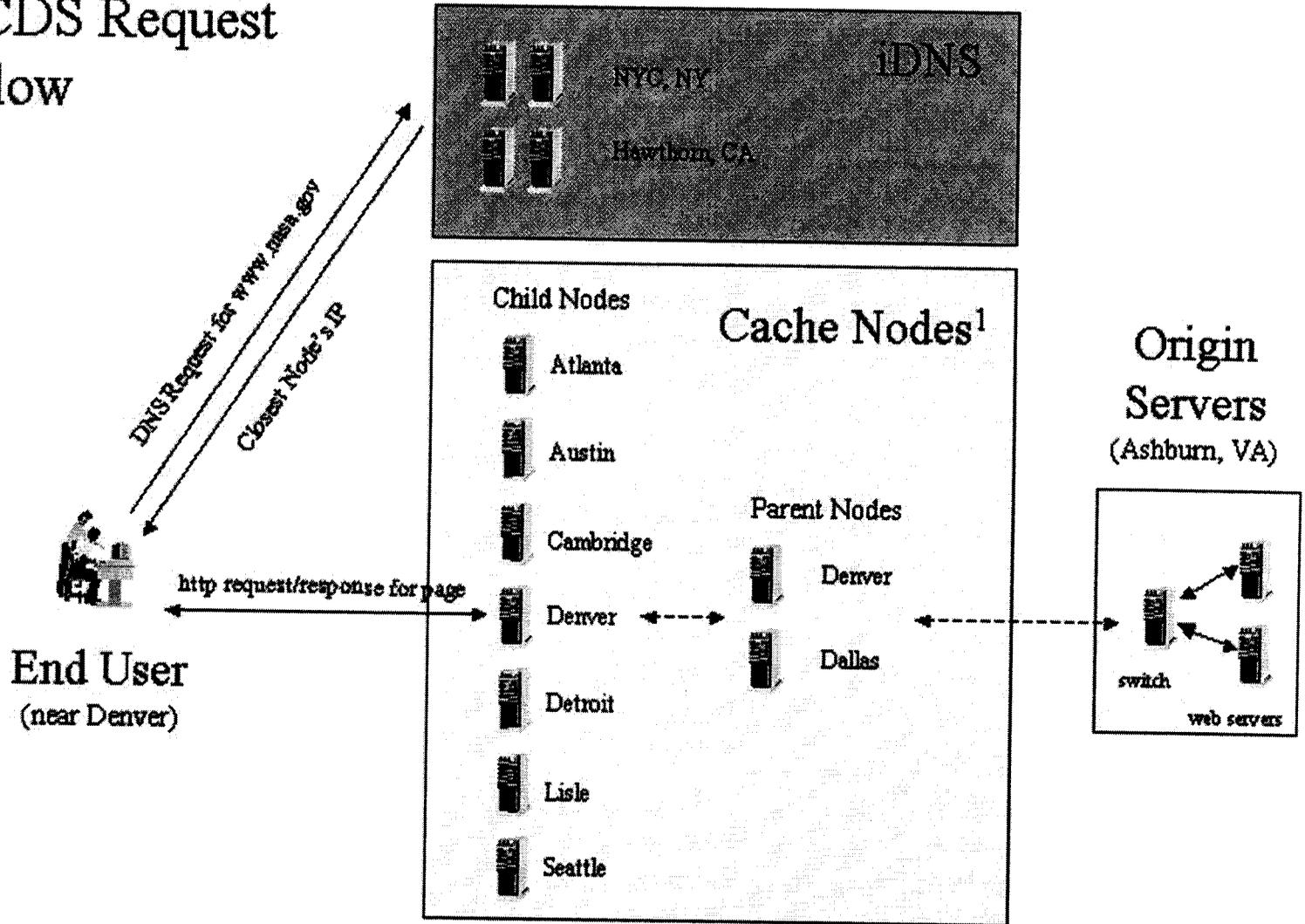


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Caching Architecture

ICDS Request Flow

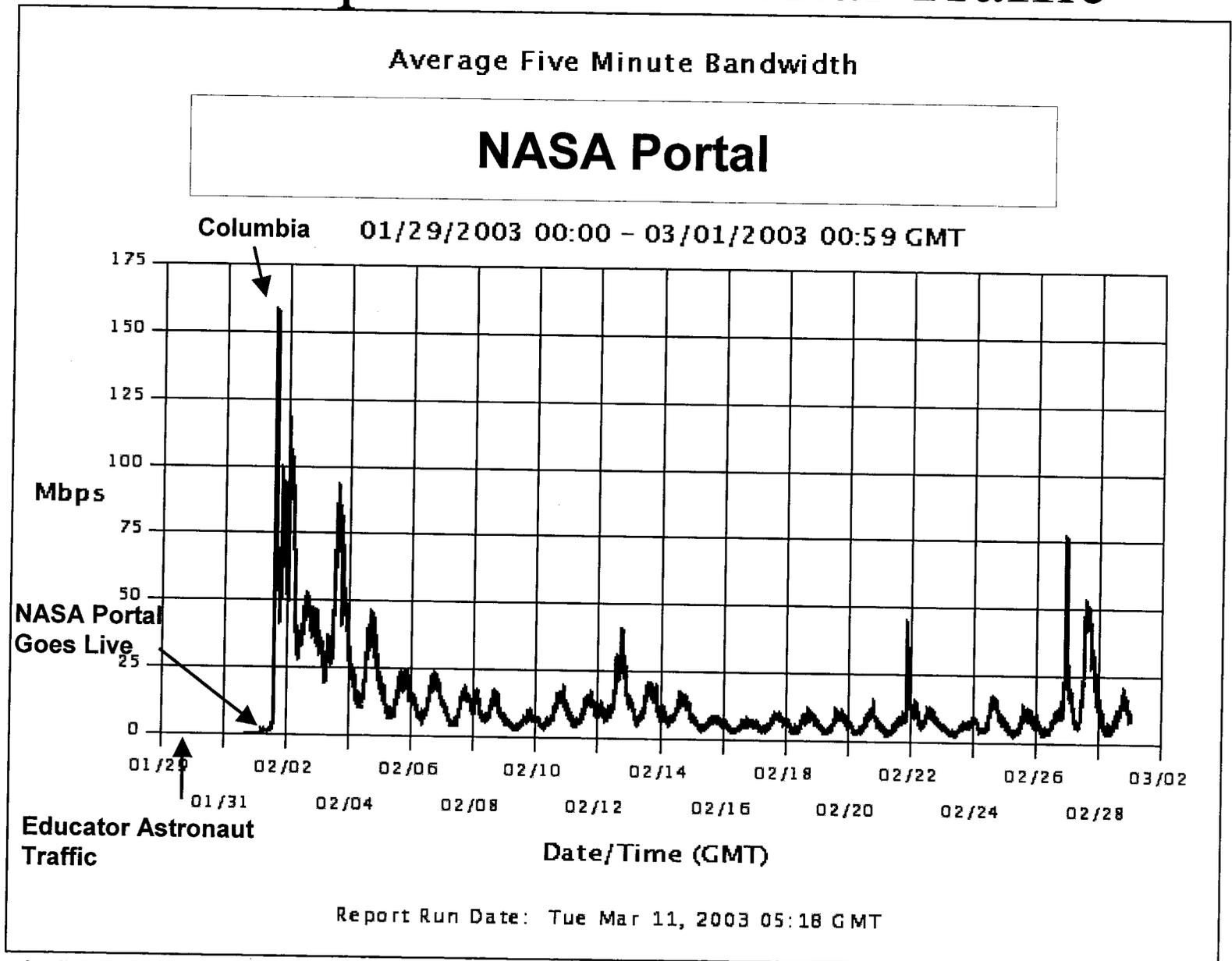


←---→ request for content only if cache doesn't currently have the object ¹Nodes contain from 2 to 6 servers each.

Current Status

- ◆ Portal continues to be very stable and serving content
- ◆ Total hits as of March 26: 578,579,390
 - Total unique visitors: 5,503,473
 - Actual traffic: 3,119,821 hits per hour at peak
 - Expected traffic: 6,000 hits per hour
 - Traffic in first 5 days was the expected traffic for the six months
 - For example, we expected 20,000 queries/day on our search engines, designed for 20,000 queries/hour
 - Received ~1.5M search queries on February 1
- ◆ Total information transferred
 - 5.05 terabytes

A Snapshot of the Portal Traffic



April 1-3, 2003

NASA Portal - GSA/FTS 2003

Press Coverage

- ◆ **NASA Web Site Put to Test Early**
 - *New York Times*, February 3, 2003
 - <http://www.nytimes.com/2003/02/03/technology/03WEB.html>
- ◆ **New NASA Site Withstands the Barrage**
 - *Federal Computer Week*, February 3, 2003
 - <http://www.fcw.com/fcw/articles/2003/0203/web-nasa-02-03-03.asp>
- ◆ **Revamped NASA Web Site Performed Well During Disaster**
 - *Computer World*, February 4, 2003
 - <http://www.computerworld.com/developmenttopics/websitemgmt/story/0,10801,78137,00.html>
- ◆ **NASA Officials Show the Right Stuff With Candor on Columbia**
 - *St. Petersburg Times*, February 3, 2003
 - http://www.sptimes.com/2003/02/03/Columns/NASA_officials_show_t.shtml

Lessons Learned

- ◆ **Pick the right managed hosting provider for the job**
 - Especially if it is for the *premier* government Web site with “out of this world” content
 - Especially if the schedule is “impossible”
 - Especially if close, technical collaboration is required
 - Especially if they share your vision...