



GIG Content Delivery Services

GCDS

*Bringing Enterprise Services and Cloud Computing
to the **EDGE***

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Agenda

- **GCDS**
 - Description
 - User Base
 - Future Plans
- **GCDS and Cloud Computing**



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GCDS, the “Enterprise Service” The WHAT, WHY, and WHO

WHAT IS GCDS?

- Type Accredited
- Distributed computing platform
- Deployed globally at the edge
- On NIPRNet and SIPRNet
- Optimizes the delivery of mission content and applications thru standards based web technologies.

WHY USE GCDS?

- Achieve up to 30 times better user performance
- Offload up to 90% of the hits from your data center infrastructure
- Meet customer expectations for faster, more secure, more reliable and richer web applications and products on the DISN.

WHO SHOULD USE GCDS?

- Global users accessing mission data over high latency networks
- Providers who are adding servers and BW to the datacenter to meet rising user demand
- Owners of applications that have low user adoption due to poor end user experience

“ GCDS has made a very significant improvement in CJTF-82’s ability to collaborate, share information, and disseminate information between CONUS and Afghanistan. Before GCDS units could not effectively access the information on the portal in Afghanistan.” - Combined Joint Task Force 76 CONUS end user

DISA Web Applications: The Challenge

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- **Performance**
 - Centralized sites create an inherent bottleneck
- **Availability**
 - Global user population = huge infrastructure problem
- **Scalability**
 - Over provisioning raises cost of ownership
- **Security**
 - Centralized sites create an inherent target for attackers
- **Offload**
 - Web2.0 and PKI add significant processing requirements
- **Visibility**
 - Application adoption, and instrumentation complex



- **Performance**

- Content/Apps are served from locations near end users

- **Availability**

- No single point of failure
- Automatic failover
- Redundancy = better connections and higher performance

- **Scalability**

- Serve large audiences and meet peak demands

- **Security**

- Protection against DDoS attacks
- Shield IP infrastructure

- **Infrastructure Off-load**

- Reduce physical infrastructure
- Expand capacity



- **Visibility**

- Monitoring
- Instrumentation
- Alerting



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Roadmap

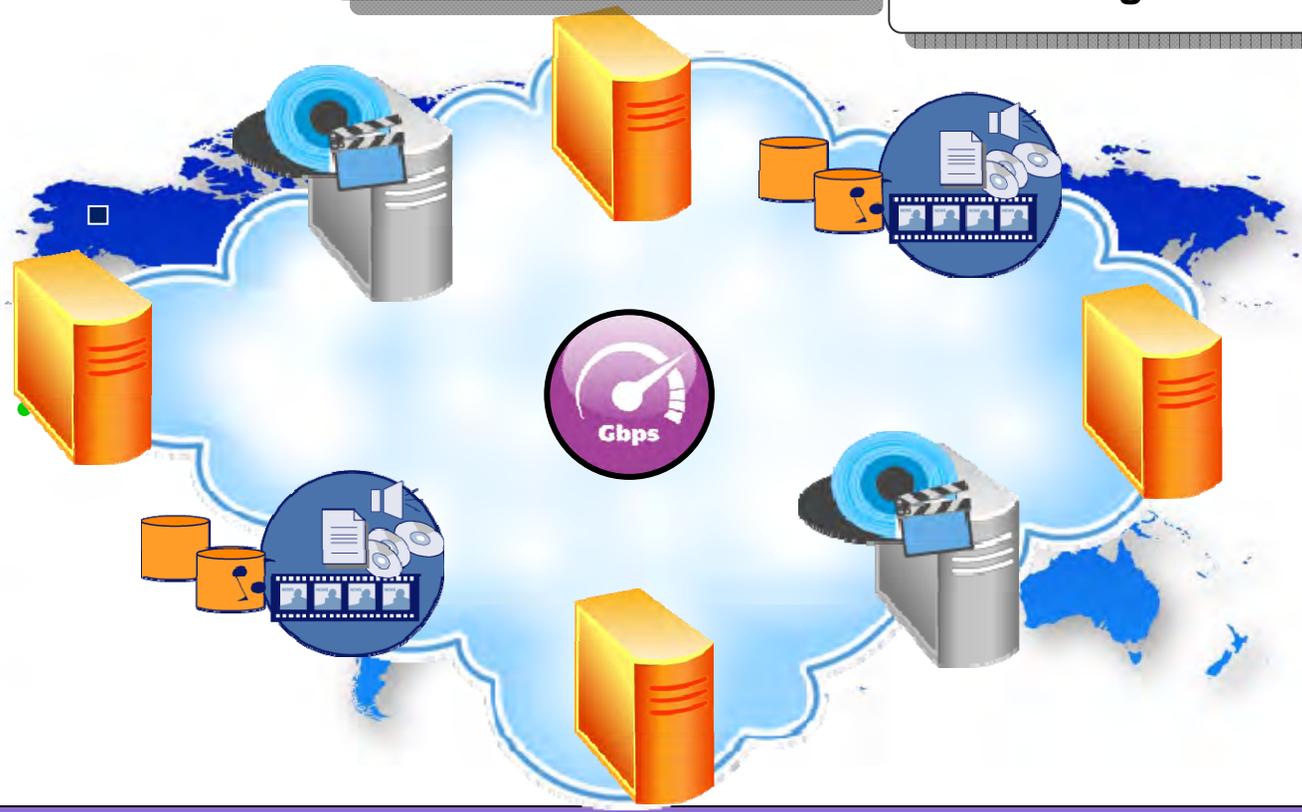
GCDS 1.0
HTTP/S Delivery
TODAY



GCDS 1.x
Gig Edge Capacity
Full Edge Deployment



GCDS 2.0
Network Storage
Streaming Service



Continue to Lead with Innovation



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Serving the Warfighter

DoD PKI Management

PLEASE SELECT ONE CA

- ALL CRL 2P
- DOD CA-11
- DOD CA-12
- DOD CA-13
- DOD CA-14
- DOD CA-15
- DOD CA-16
- DOD CA-17
- DOD CA-18
- DOD CLASS 3 CA-10
- DOD CLASS 3 CA-5
- DOD CLASS 3 CA-6
- DOD CLASS 3 CA-7
- DOD CLASS 3 CA-8
- DOD CLASS 3 CA-9
- DOD CLASS 3 EMAL CA-10
- DOD CLASS 3 EMAL CA-5
- DOD CLASS 3 EMAL CA-6
- DOD CLASS 3 EMAL CA-7
- DOD CLASS 3 EMAL CA-8

Select a Certification Authority on the left to:

- View/Download the CA Certificate
- Download the CA CRL
- Download the CA CRL in GZIP format

CRL / PKI

- Scalability on Demand**
 - ✓Over 787Mbps peak
- Offload**
 - ✓Over 99.0% Origin Offload
- Performance**
 - ✓4x improvement

AF Portal

CAC Login

Membership Information

Updates & Announcements

Service Portals

- Security**
 - ✓PKI / CRL Support
- Offload**
 - ✓60% Origin Offload
- Performance**
 - ✓2x improvement

INTEGRATED LEARNING ENVIRONMENT

ILE News

Distance Learning

- Increase Availability**
 - ✓Reliable delivery to global end user base
- Offload**
 - ✓Over 90.0% Origin Offload

“No debating that our ability to effectively access information will continue to increase in importance throughout the battlefield. To this end, GCDS will be leveraged as an effect weapon towards ensuring information flow.” -- LtCol Randy Ross, Chief C2 Systems Branch (USCENTCOM CCJ3)

GCDS Reached New Heights in 2008



**Customer Web
Applications**

+83%
(Total 50)



**Network
Capacity**

+200%
(Total 1.7 Gbps)



**24x7 Support /
Customer
Satisfaction**



Tremendous growth and success in 2008



Expect Even Greater Heights from GCDS in 2009



DoD Enterprise Services Designation Memo - *John Grimes, DoD CIO*

The use of common information technology capabilities and services across the DoD can improve warfighting effectiveness, improve interoperability and reduce cost. This is the first in a series of memorandums that will define DoD-wide common information technology solutions as DoD Enterprise Services (DoD ES).

The following candidate enterprise services have been evaluated and accepted by the EGB and are designated DoD Enterprise Services:

Content Delivery Services – the DISA-provided GIG Content Delivery Service (GCDS) is the enterprise solution for distributed content caching.



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Cloud Computing

- **" Internet ("cloud") based development and use of computer technology ("computing"). ... a style of computing in which dynamically **scalable** and often **virtualized** resources are provided **as a service** over the Internet. – WIKIPEDIA**
- ***"a style of computing where **massively scalable IT** related capabilities are provided '**as a service**' using **Internet technologies** to multiple external customers."* – Gartner**
- **" **IT Infrastructure**, Web-based services, or software-as-a-service that is **accessible from anywhere** on the **Internet** and either free or billed solely by consumption." – Forrester**

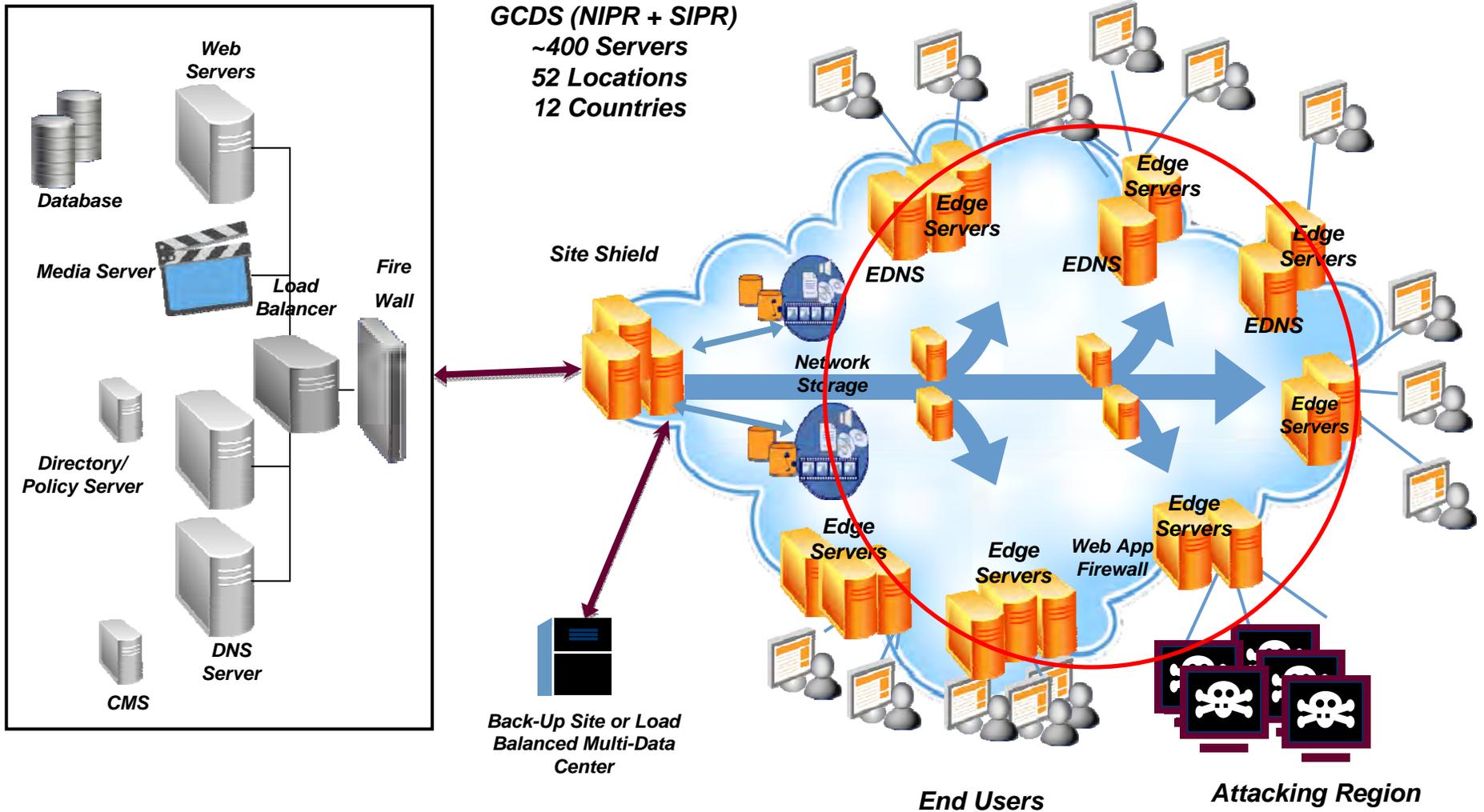
GCDS and Cloud Computing

- **Cloud Computing means different things to different people**
 - Still in it's infancy
 - Must certainly include massively distributed/shared infrastructure
- **GCDS Cloud Computing Defined:**
 - Content Delivery as a Service in the DISN Cloud



Operational View (OV-1)

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Security, Availability, Scalability, Visibility, Resource Savings, Performance



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Akamai on the Internet

Government

- 13 of 15 cabinet agencies



Largest Internet Event

Scalability On-Demand

- ✓ 2.25 Tbps during the Oath
- ✓ 5.4 million visitors/minute at the news websites
- ✓ Over 12 million hits/sec
- ✓ Over 99% Origin Offload

Enabling Shuttle Missions

Scalability

- ✓ Over 12,000 Concurrent Users during launch

Offload

- ✓ 90.0% Origin Offload

Performance

- ✓ Web 2.0 Dynamic Website



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GCDS Applications

DISN CLOUD	ARMY	NAVY	AIR FORCE	MARINES	DoD	Pending	TOTAL
NIPRNET	2	8	3	0	9	1	23
SIPRNET	2	0	1	2	15	7	27
TOTAL	4	8	4	2	24	8	50



CONUS DEPLOYMENT UTAH NEBRASKA CALIFORNIA COLORADO TEXAS OKLAHOMA ALABAMA OHIO PENNSYLVANIA VIRGINIA (3) FLORIDA	OCONUS DEPLOYMENT ALASKA HAWAII GERMANY ITALY KOREA OKINAWA GUAM	SWA DEPLOYMENTS IRAQ (2) KUWAIT AFGHANISTAN SAUDI ARABIA QATAR UNITED ARAB EMIRATES DJIBOUTI	GLOBAL DEPLOYMENT 400+ SERVERS 20 DATACENTERS 50 WEB APPLICATIONS 1.7 Gbps of Network Capacity and Growing
● NIPRNET ▲ SIPRNET ■ NIPRNET / SIPRNET PENDING INSTALLATION			

Customer	Performance Improvement	Total BW to End Users	BW from Origin	BW Offload Savings
NKO	2.3x CONUS	160 GB	62 GB	61%
NEL (5)	N/A	450 GB	45 GB	96%
GDS CRL	4.3x	7129 GB	5 GB	99.9%
GCSS-AF	2x	150 GB	60 GB	60%
MNF-I	N/A	0.38 GB	0.16 GB	58%
HarmonieWeb	N/A	0.29 GB	0.05 GB	84%
BTA-JCSS	N/A	0.73 GB	0.63 GB	14%
AKO	3-4x SWA	154 GB	7.6 GB	95%
EMF	N/A	0.14 GB	0.05 GB	68%
MDA	N/A	0.0067 GB	0.005 GB	26%
Navy Cool	N/A	0.9 GB	0.02 GB	98%
ADLS	N/A	338 GB	30 GB	91%
DoD Symantec	N/A	8.74 GB	2.48 GB	72%
DoD McAfee	N/A	2.9 GB	0.12 GB	96%
Army MyForms	N/A	2.1 GB	1.2 GB	44%

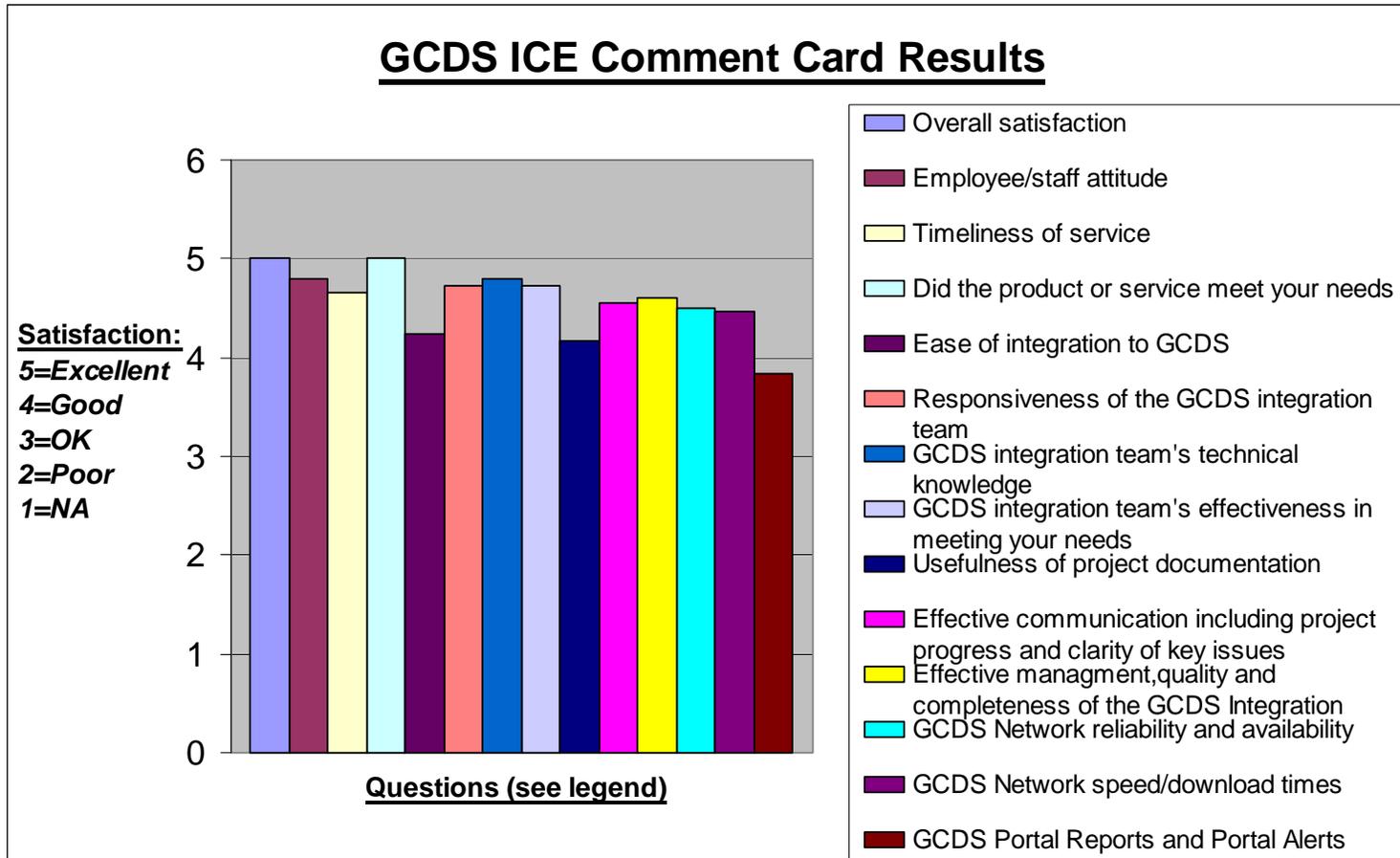
Customer	Performance Improvement	Total BW to End Users	BW from Origin	BW Offload Savings
CJTF (2)	30x	40.85 GB	16.92 GB	59%
MNFI	22x	956 MB	0.05 MB	99.98%
MARCENT (2)	6x	24.56 GB	6.37 GB	74%
NGA (6)	3.5x	12.1 GB	5.9 GB	51%
Intelink	7x	238.5 GB	102 GB	57%
AFWA	2x	37.2 GB	31.6 GB	15%
EMF	N/A	0.0052 GB	0.0015 GB	70%
TEC	N/A	20.4 GB	13.2 GB	35%
Emeralds	N/A	6 GB	4.6 GB	77%
DoD Symantec	N/A	89.2 GB	3.9 GB	96%
DoD McAfee	N/A	7.5 GB	1.4 GB	81%



GCDS Customer Satisfaction

(April 2007 through March 2009)

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Where can I find out more?

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