Latest Trends in Data Center Networking Architecture

A Presentation for Panduit

William Favre Slater, III

February 3, 2014

Agenda

- Introduction
- Some History
- Latest Developments in Networking
- Technologies and Tools
- Looking Forward
- A Value Proposition
- Conclusion
- Questions

INTRODUCTION

William F. Slater, III

- **Current Position – Project Manager / Sr. IT Consultant at Slater Technologies, Inc.**
- Working on projects related to
  - Business Resiliency
  - Security reviews and auditing
  - ISO 27001 Project Implementations
  - Subject Matter Expert for preparing Risk Management and Security Exams at Western Governor's State University in UT
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  - Developing and presenting technical training materials for undergraduate and graduate students at the Illinois Institute of Technology in the areas of Data Center Operations, Data Center Architecture, and Information Technology hardware and software.

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William F. Slater, III
An Introduction (continued)

- IT professional since July 1977
- Currently a Senior IT Consultant in IT Security, Information Security, IT Infrastructure Management, Data Center Operations & Development, IT Change Management, Application System Development, Technical Service Development, and Service Management
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- M.S. in Cybersecurity – Bellevue University, Bellevue, NE, 2013
- MBA, University of Phoenix, 2010
- MS in Computer Information Systems, University of Phoenix, 2004
- BS in Engineering Technology with a major in Computer Systems Technology, University of Memphis
- Published author & editor: Magazines, books, courseware
- Subject Matter Expert in Cybersecurity for Caveon Courseware and Testing
- Happily married (since December 2000) to Joanna K. Roguska, who is a professional web developer
- Native of Memphis, Tennessee
- Resident of Chicago / Chicagoland area since 1986 (except for the period between May 1991 and December 1994)

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A Career in Information Technology

If you are interested, please visit these URLs:

http://billslater.com/career

http://billslater.com/certifications

http://billslater.com/interview

http://billslater.com/writing

http://billslater.com/cyberwar

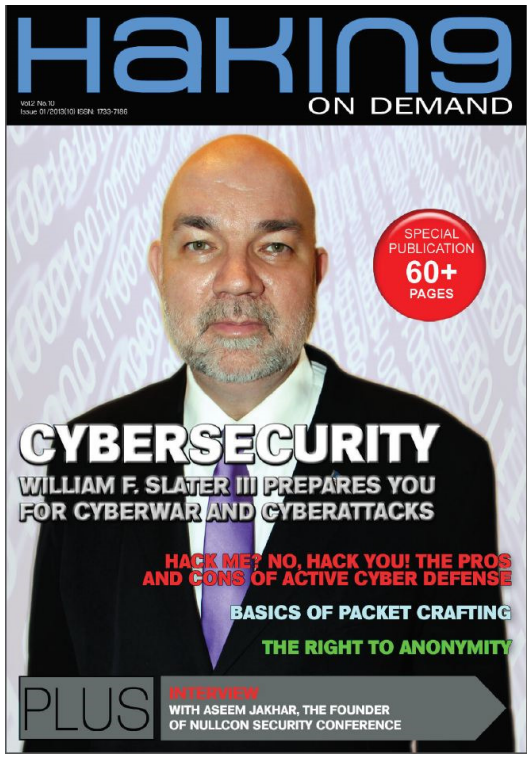
http://billslater.com/datacentermanager

http://billslater.com/iso27001

http://billslater.com/ms_cybersecurity

http://on.fb.me/fW3wH0

http://on.fb.me/vfGRVi



January 15, 2013

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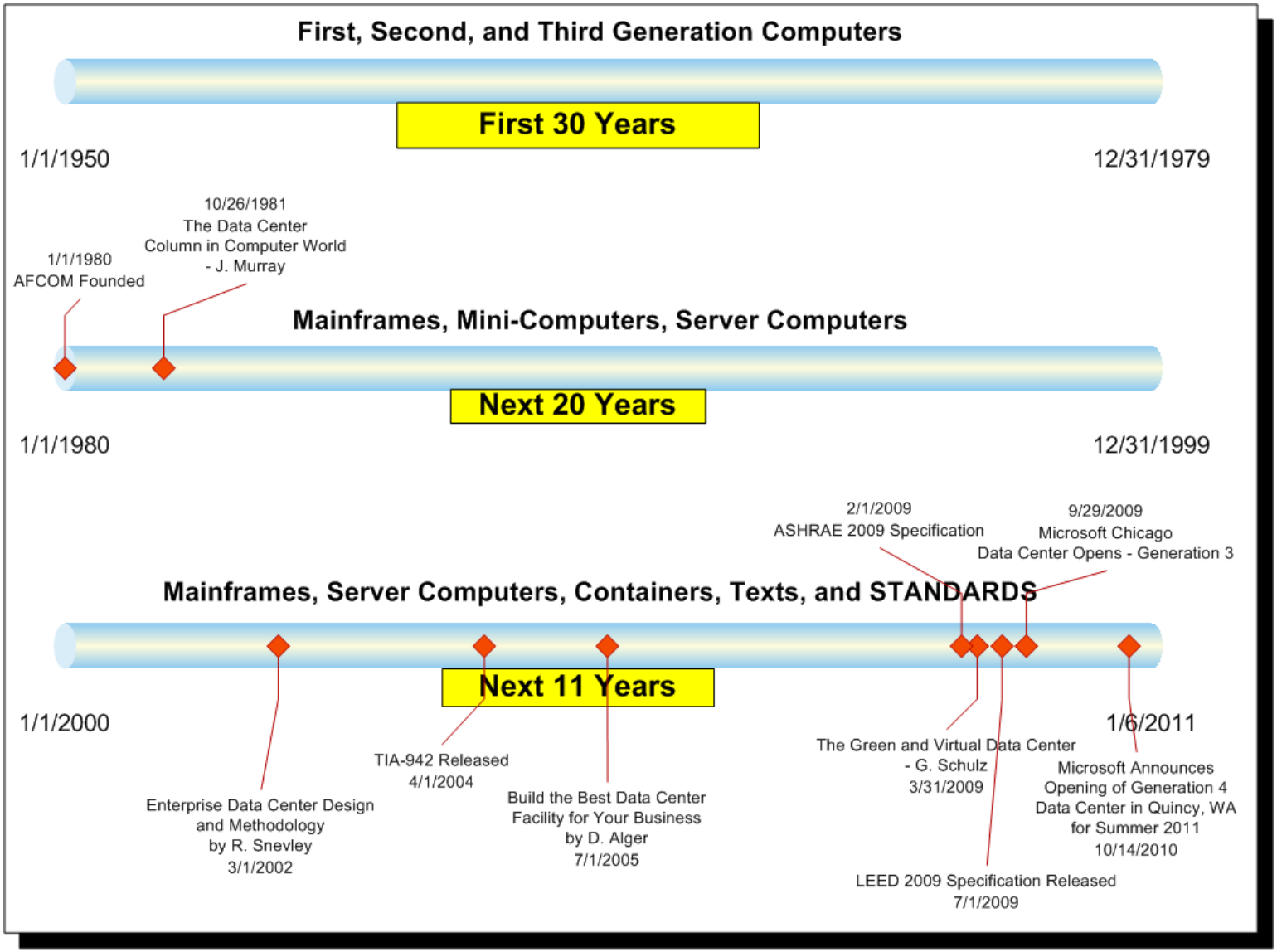
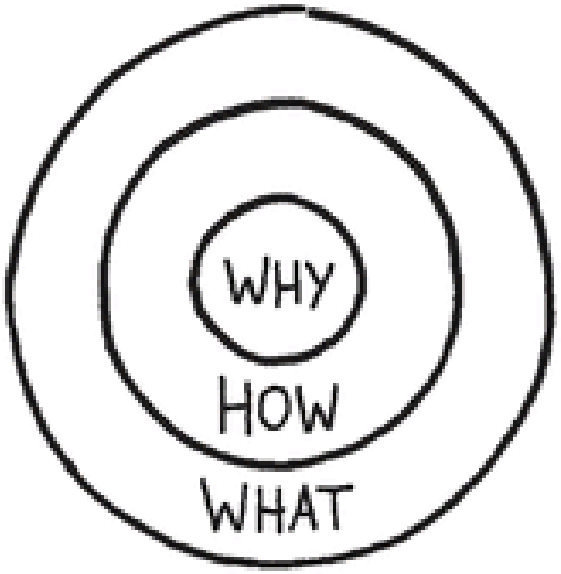
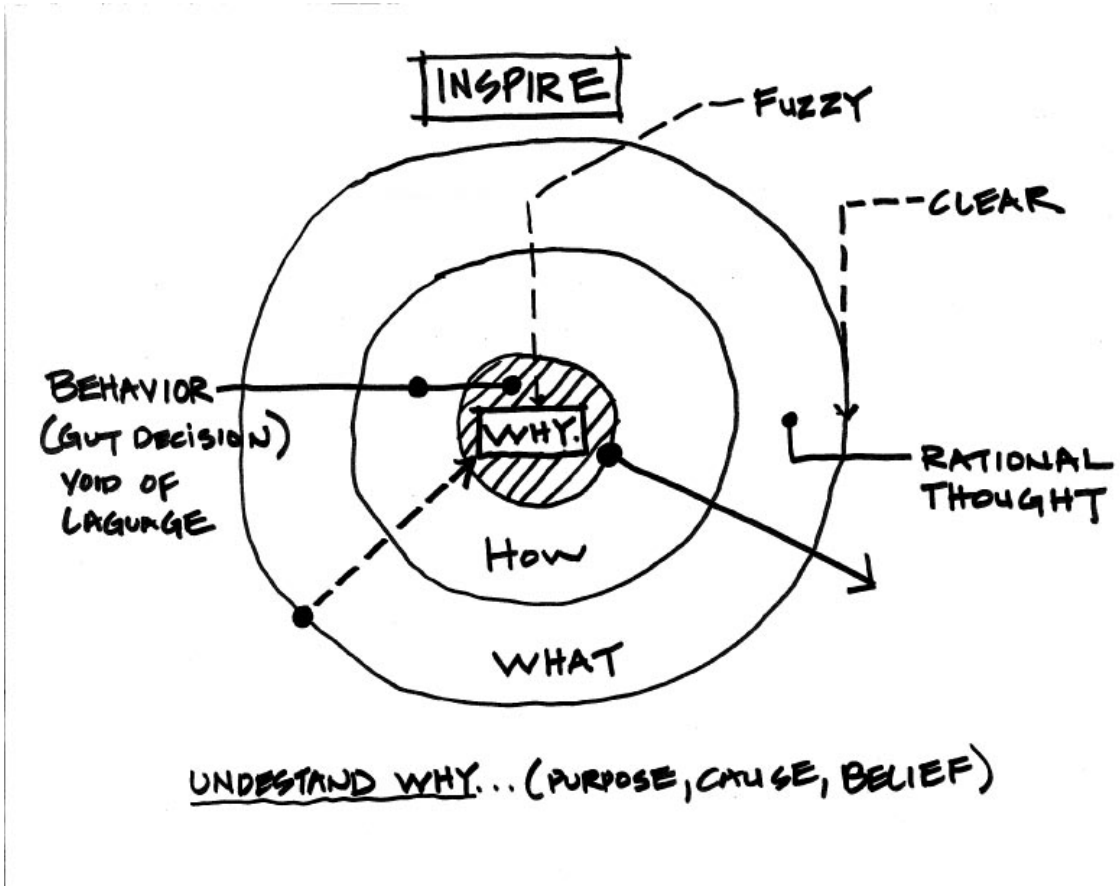
SOME DATA CENTER HISTORY



Evolution of Data Centers



WHY ARE WE DOING THIS?



WHY ARE WE DOING THIS?

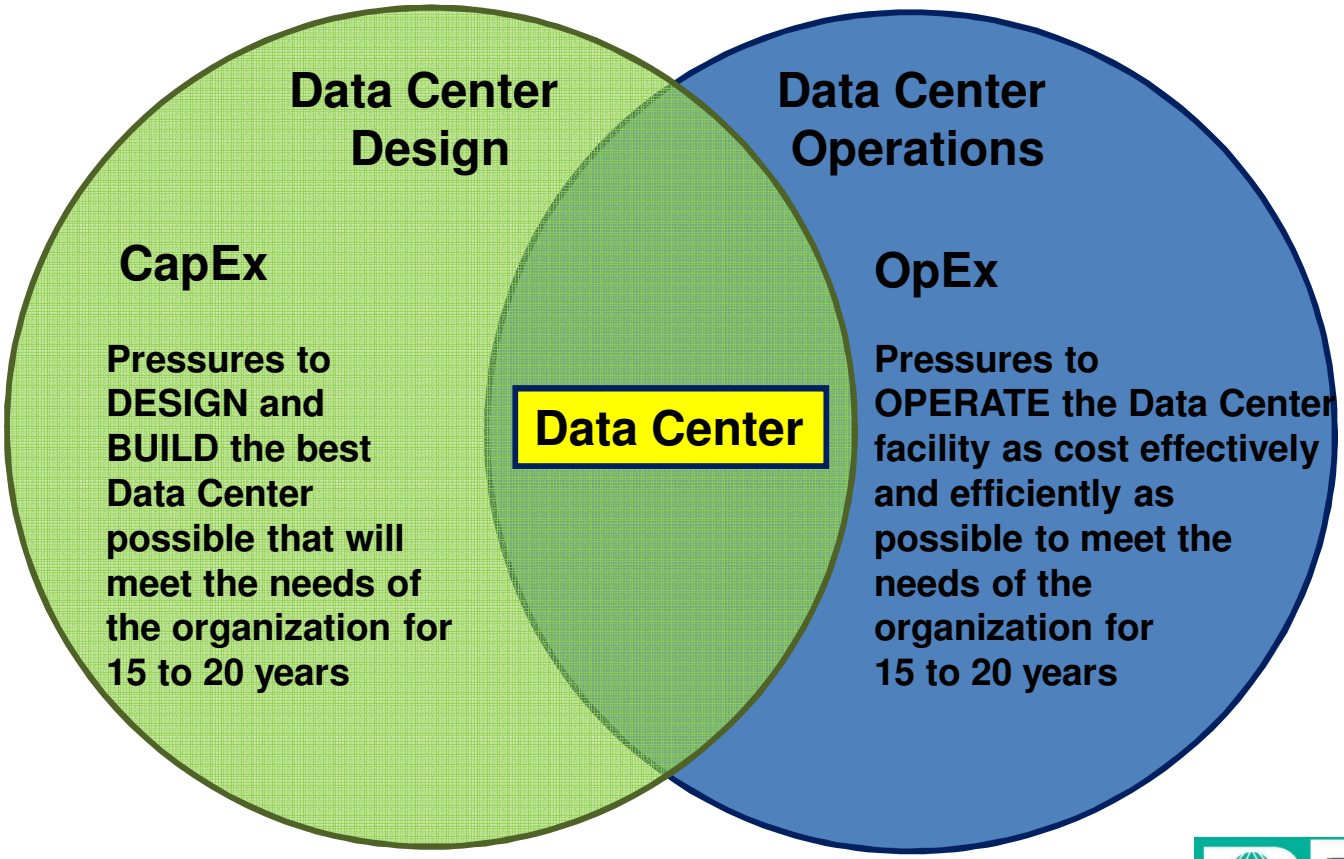
Why?

- Data and Data Centers are more important than ever in Organizations
- We have more Data Center Knowledge and Experience than ever
- The era of Cloud Computing and Big Data is here
- Data Center Infrastructures must respond to the speed and needs of Business
- **Best practices in Data Center Infrastructure and Management, will result in happier customers and more business opportunities for Panduit and its customers**

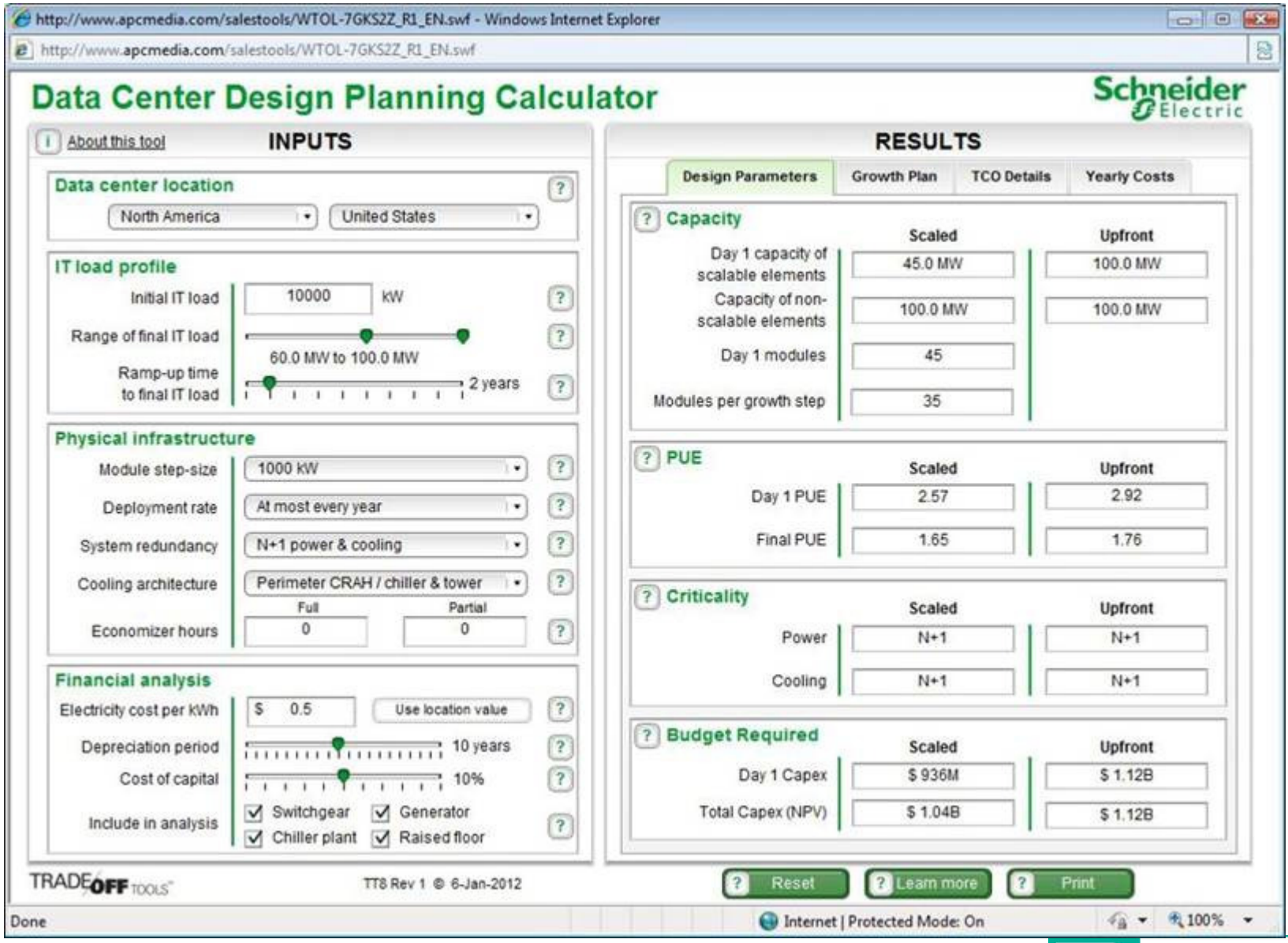
Most Important Concepts

- Power
- Cooling
- Safety
- Security
- Space planning and management
- **Reliability and Availability – 100% Uptime**
- **Design for Concurrent Maintainability**
- Stay abreast of relevant technologies in power, cooling, IT, and management
- Persistence and the Will to Succeed

Data Center Design vs. Data Center Operations



DATA CENTER DESIGN PLANNER



http://www.apcmedia.com/salestools/WTOL-7GKS2Z_R1_EN.swf

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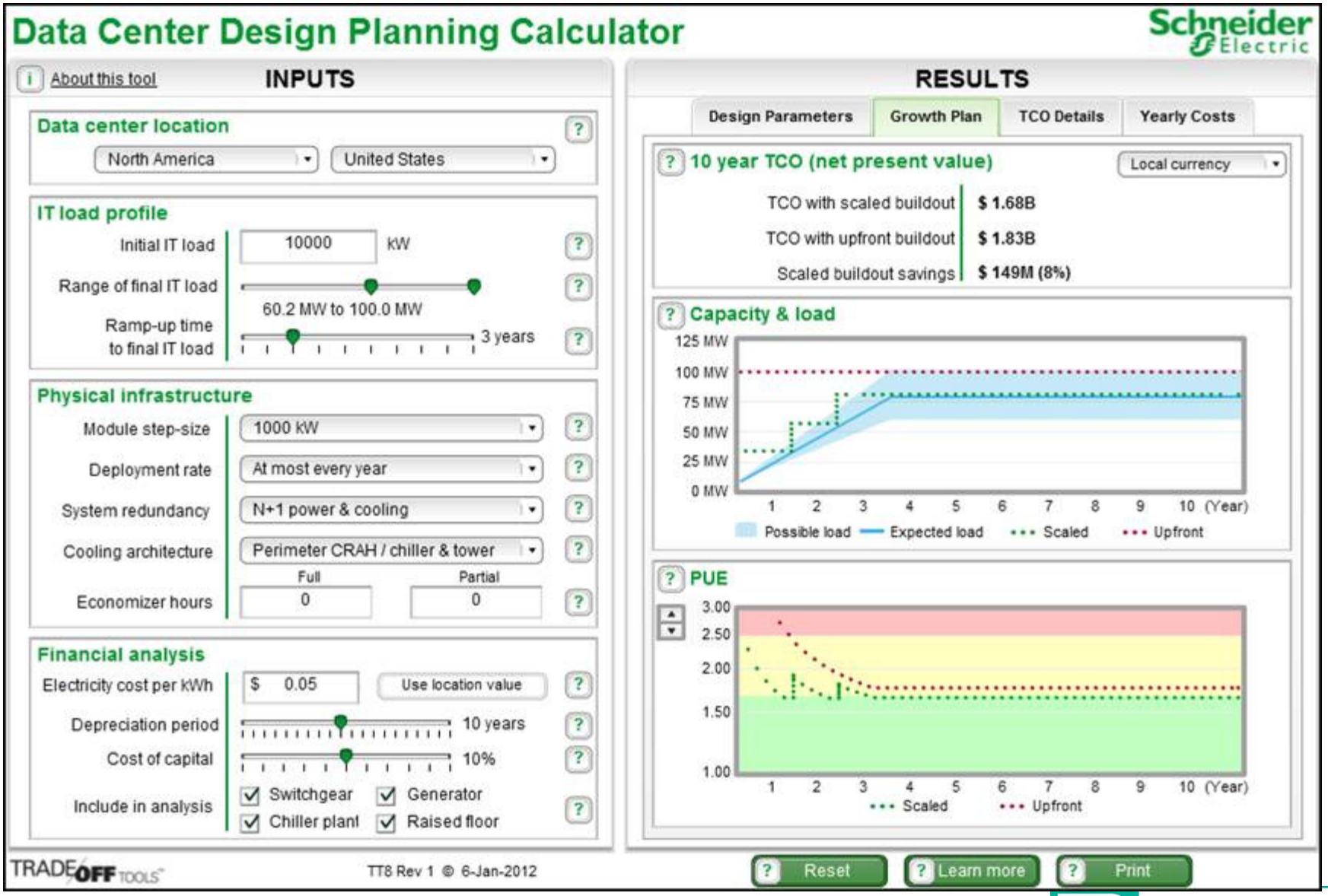

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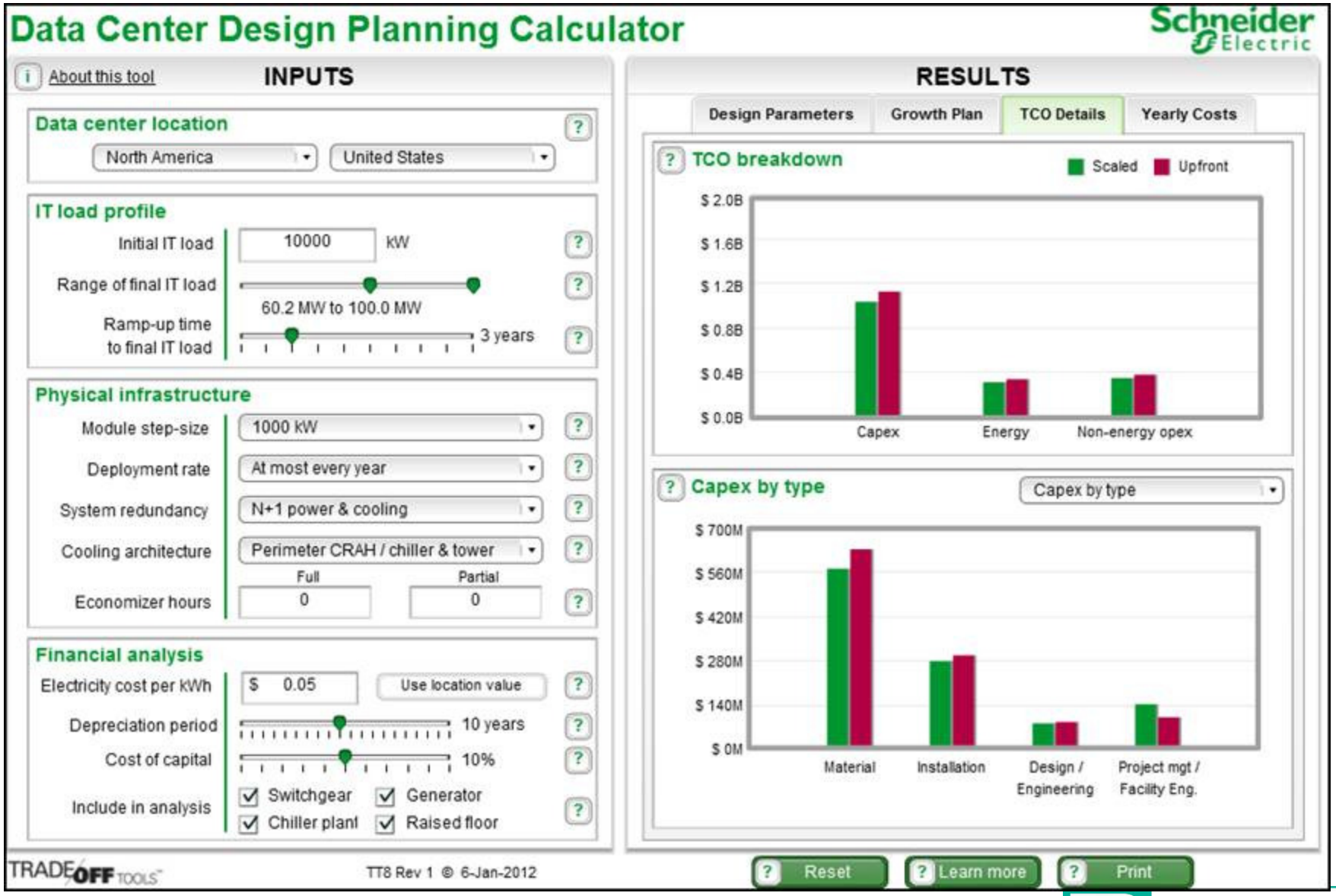

http://www.apcmedia.com/salestools/WTOL-7GKS2Z_R1_EN.swf

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http://www.apcmedia.com/salestools/WTOL-7GKS2Z_R1_EN.swf

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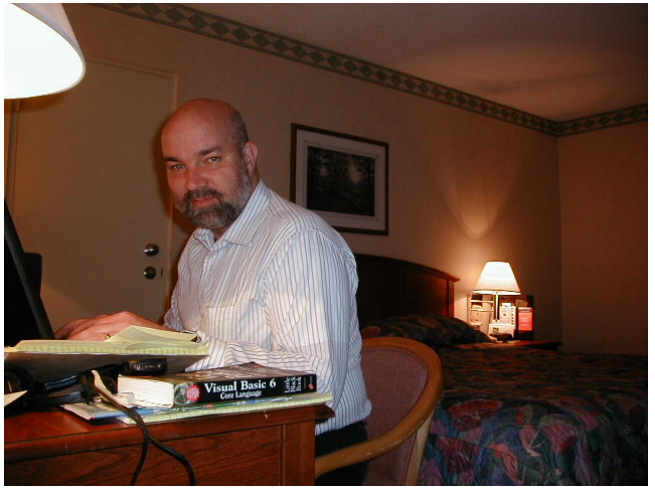
Question

- Why don’t we have a tool like this Data Center Design Planner to plan Data Center Network Architectures?
- If I am selected to work at Panduit, I could help design and develop such a tool.



WHAT'S REALLY HAPPENING ON THE INTERNET AND WHERE IS IT ALL GOING???

The Worldwide Data Explosion 2004 - 2014

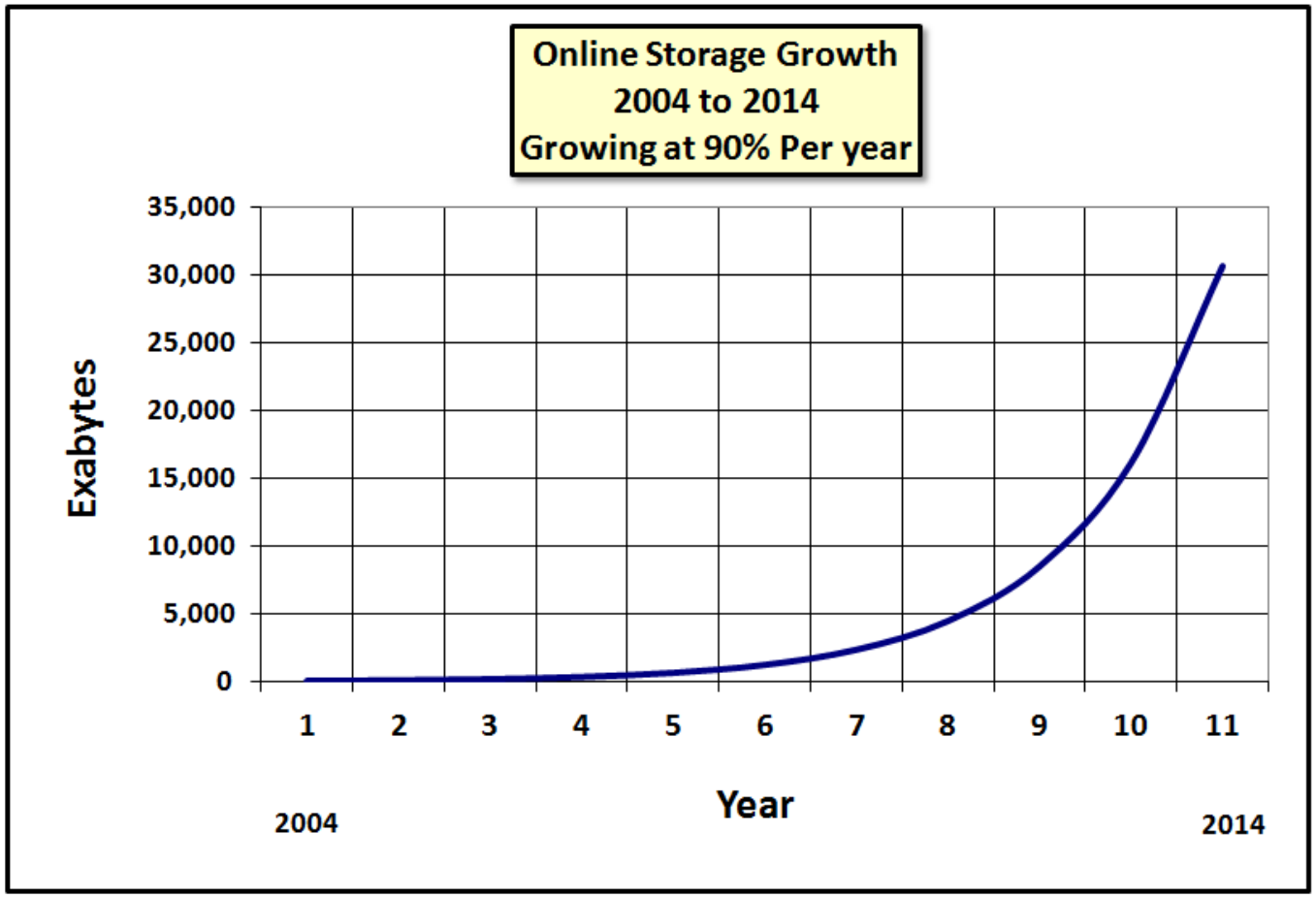


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Image: nfographic by- Shanghai Web Designers

This was from Go-Globe in 2011.

Image: Infographic by- GO-Gulf.com Web Design Company

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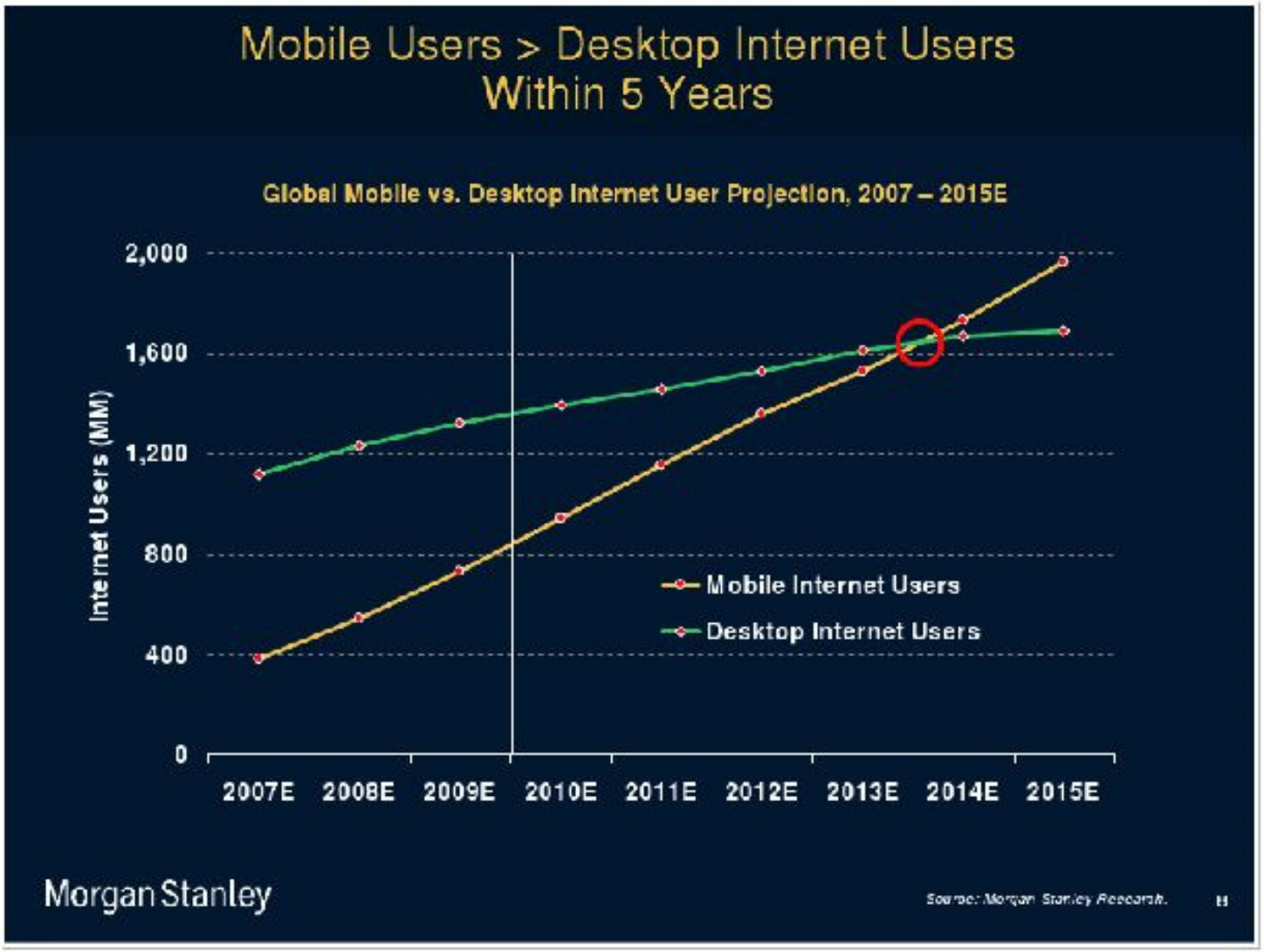


From Mary Meeker's 2010 Internet Trends Presentation.

Where Is All This Data Going?

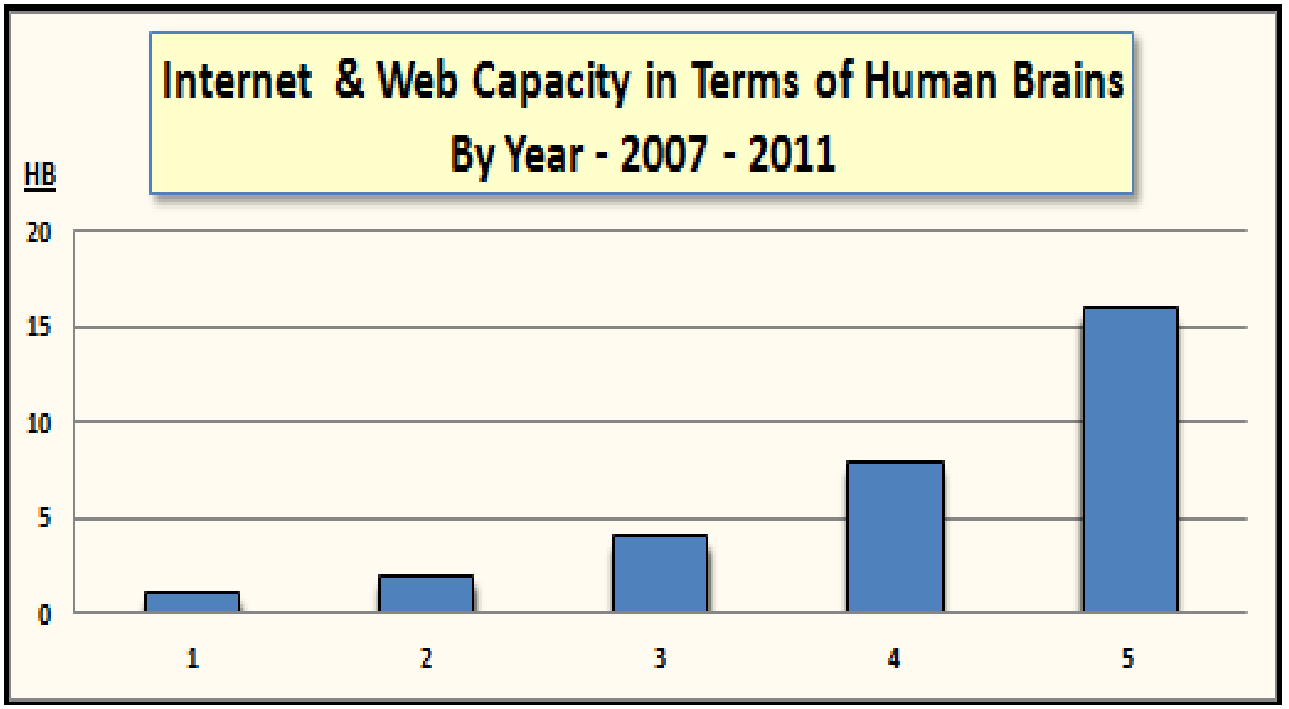
Into Cloud Data Centers!

View this Video

http://www.youtube.com/watch?v=yDYCf4ONh5M

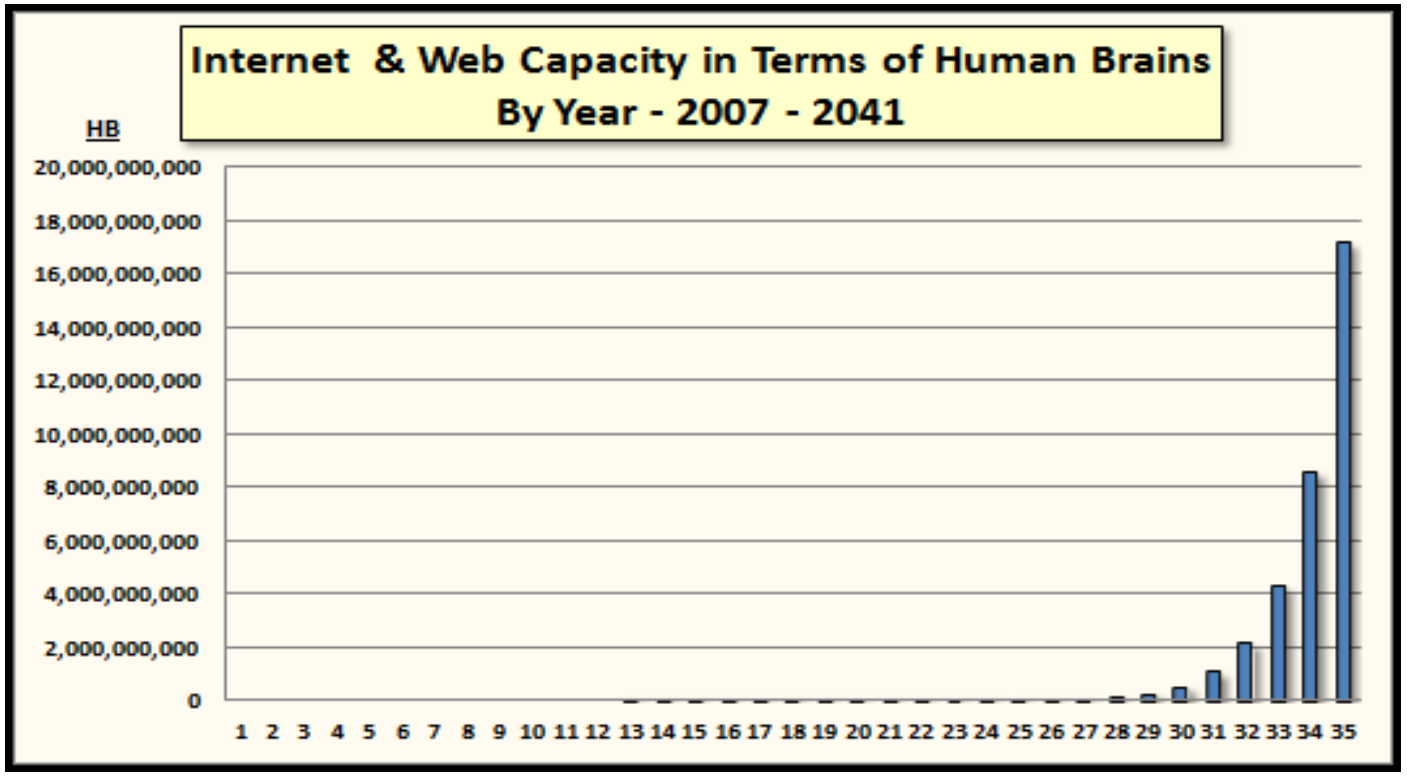
Capacity of the Internet and the Web

Count	Year	HB
1	2007	1
2	2008	2
3	2009	4
4	2010	8
5	2011	16

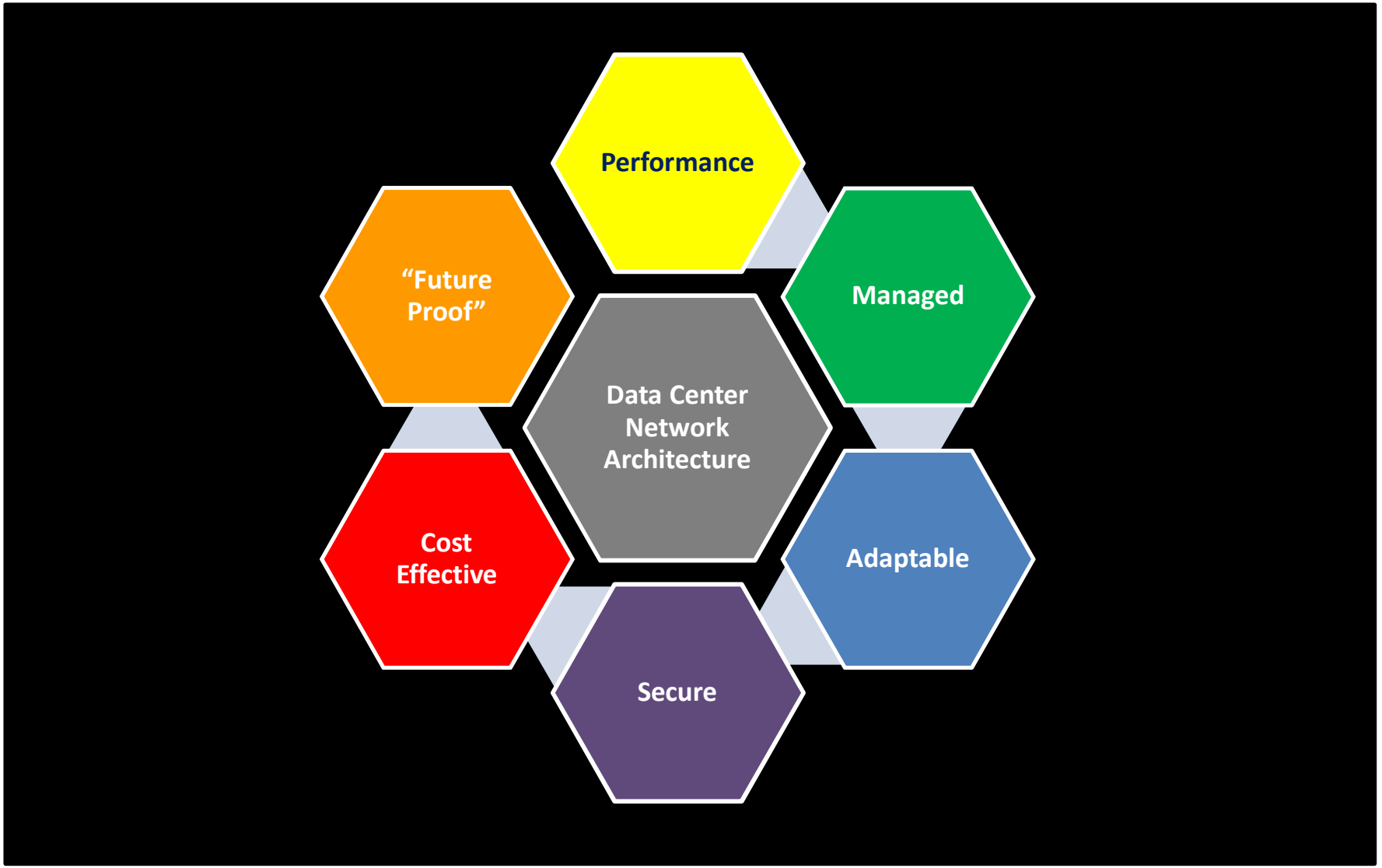


Capacity of the Internet and the Web

Count	Year	HB
1	2007	1
2	2008	2
3	2009	4
4	2010	8
5	2011	16
6	2012	32
7	2013	64
8	2014	128
9	2015	256
10	2016	512
11	2017	1,024
12	2018	2,048
13	2019	4,096
14	2020	8,192
15	2021	16,384
16	2022	32,768
17	2023	65,536
18	2024	131,072
19	2025	262,144
20	2026	524,288
21	2027	1,048,576
22	2028	2,097,152
23	2029	4,194,304
24	2030	8,388,608
25	2031	16,777,216
26	2032	33,554,432
27	2033	67,108,864
28	2034	134,217,728
29	2035	268,435,456
30	2036	536,870,912
31	2037	1,073,741,824
32	2038	2,147,483,648
33	2039	4,294,967,296
34	2040	8,589,934,592
35	2041	17,179,869,184



NEWEST DATA CENTER NETWORKING TRENDS


Performance
"Future Proof"
Managed
Data Center Network Architecture
Cost Effective
Adaptable
Secure

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Principles of Data Center Networking

- Sound Data Center Network Design
- High performance
- Layered and modular
- Scalable
- Adaptable and Flexible
- Manageable
- Resilient
- Secure
- Future-proof
- Well-documented

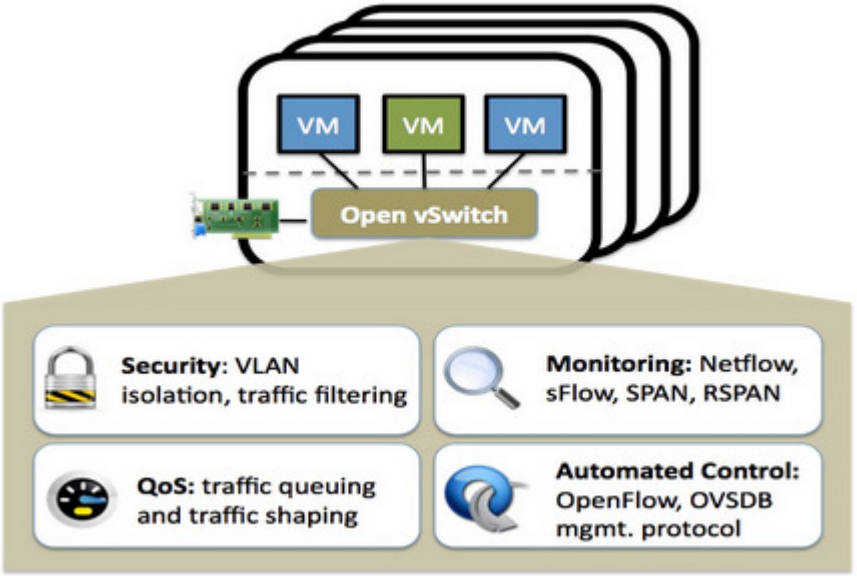
Latest Developments in Networking Architecture

Development	Example	Benefit
Virtualized Network Switching Management	Open vSwitch	Better management of switching for machines running virtual machines
Greater use of fiber	Use of 10 Gb, 20 Gb, 40 Gb, and 100 Gb more common	Greater bandwidth and performance
Converged Networks	Cisco servers unify computing, networking, management, virtualization, and storage access into a single integrated architecture	Simplified management and greater flexibility for future growth
WAN Optimization	Riverbed Steelhead Devices	Greatly improved communications performance between sites connected by WANs
IPv6	Organizations adopting IPv6	Better compatibility with other IPv6 infrastructures
Ethernet Fabric	Brocade	Overcome scalability limitations of viritual server infrastructures and STP limitations
Solutions for STP Limitations	TRILL and SPB	Overcome Spanning Tree Protocol Limitations

TECHNOLOGIES AND TOOLS

Open vSwitch

- Open vSwitch can operate both as a soft switch running within the hypervisor, and as the control stack for switching silicon. It has been ported to multiple virtualization platforms and switching chipsets. It is the default switch in XenServer 6.0, the Xen Cloud Platform and also supports Xen,KVM, Proxmox VE and VirtualBox. It has also been integrated into many virtual management systems including OpenStack, openQRM, OpenNebula and oVirt. The kernel datapath is distributed with Linux, and packages are available for Ubuntu, Debian, andFedora. The Open vSwitch release in development also supports FreeBSD.
- The bulk of the code is written in platform-independent C and is easily ported to other environments.



Source: http://openvswitch.org/

Ethernet Fabric (Brocade)

THE ETHERNET FABRIC ARCHITECTURE

Figure 2 shows the architecture of a classic Ethernet switch. The control, data, and management planes are logically connected to every port via a back plane. Control and management planes operate at the switch level not a network level.

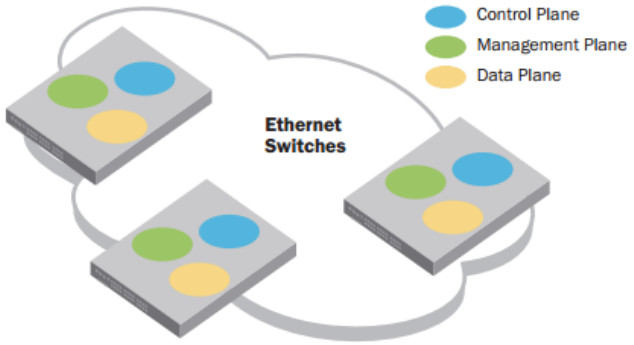


Figure 2.
Ethernet switch architecture.

Ethernet fabrics can be thought of as extending the control and management planes beyond the physical switch into the fabric. As shown in Figure 3, they now operate at a fabric level rather than at a switch level.

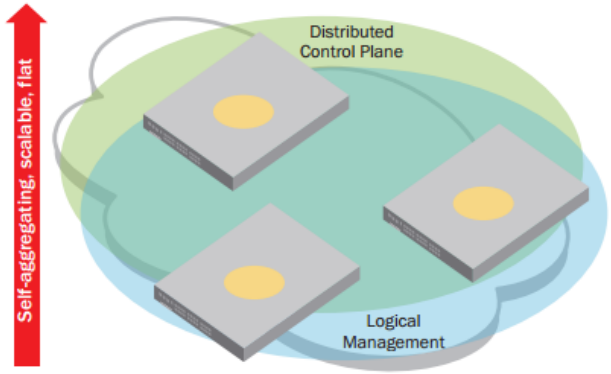


Figure 3.
Ethernet fabric architecture.

Source: http://www.brocade.com/downloads/documents/white_papers/What_Are_Ethernet_Fabrics_WP.pdf

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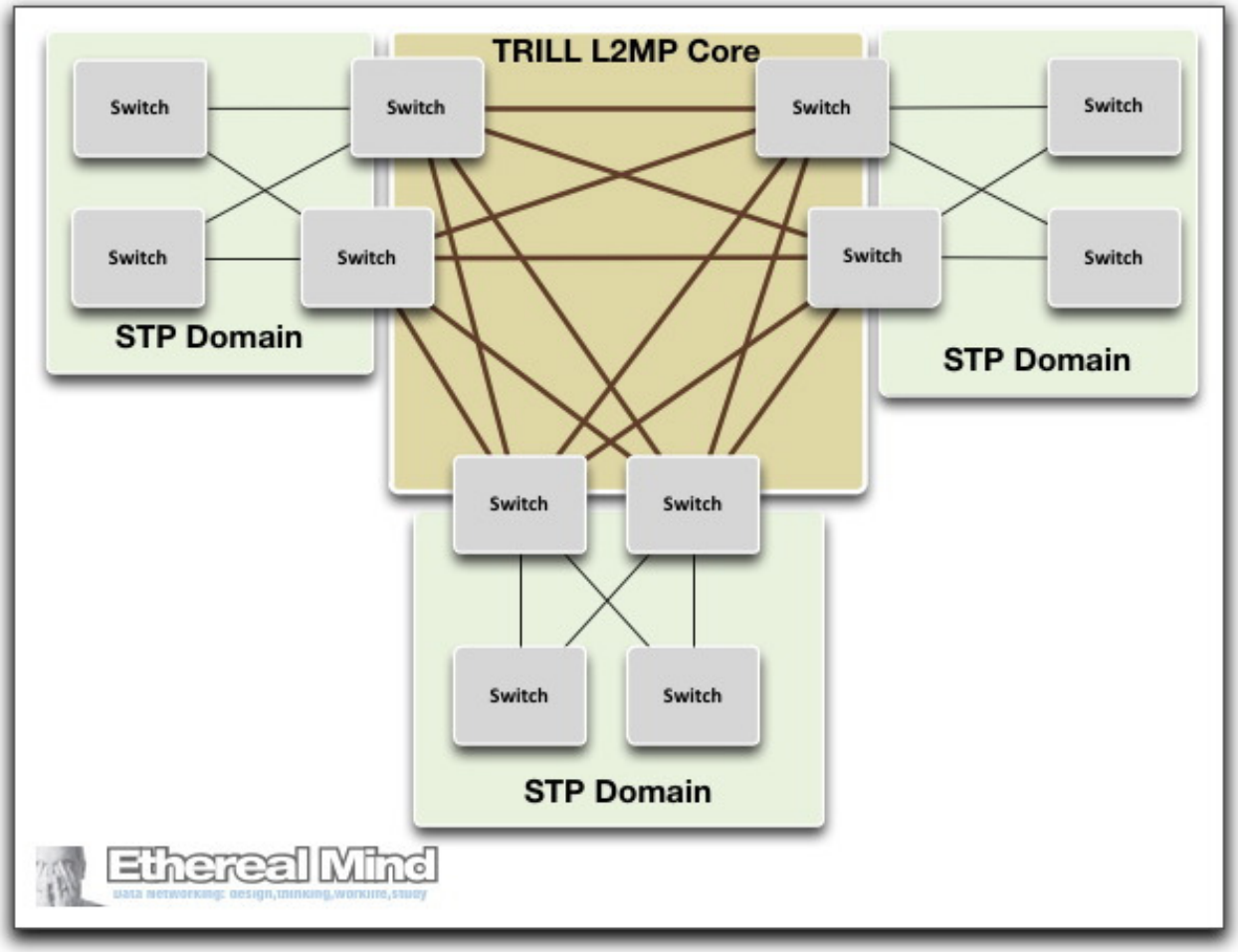
TRILL

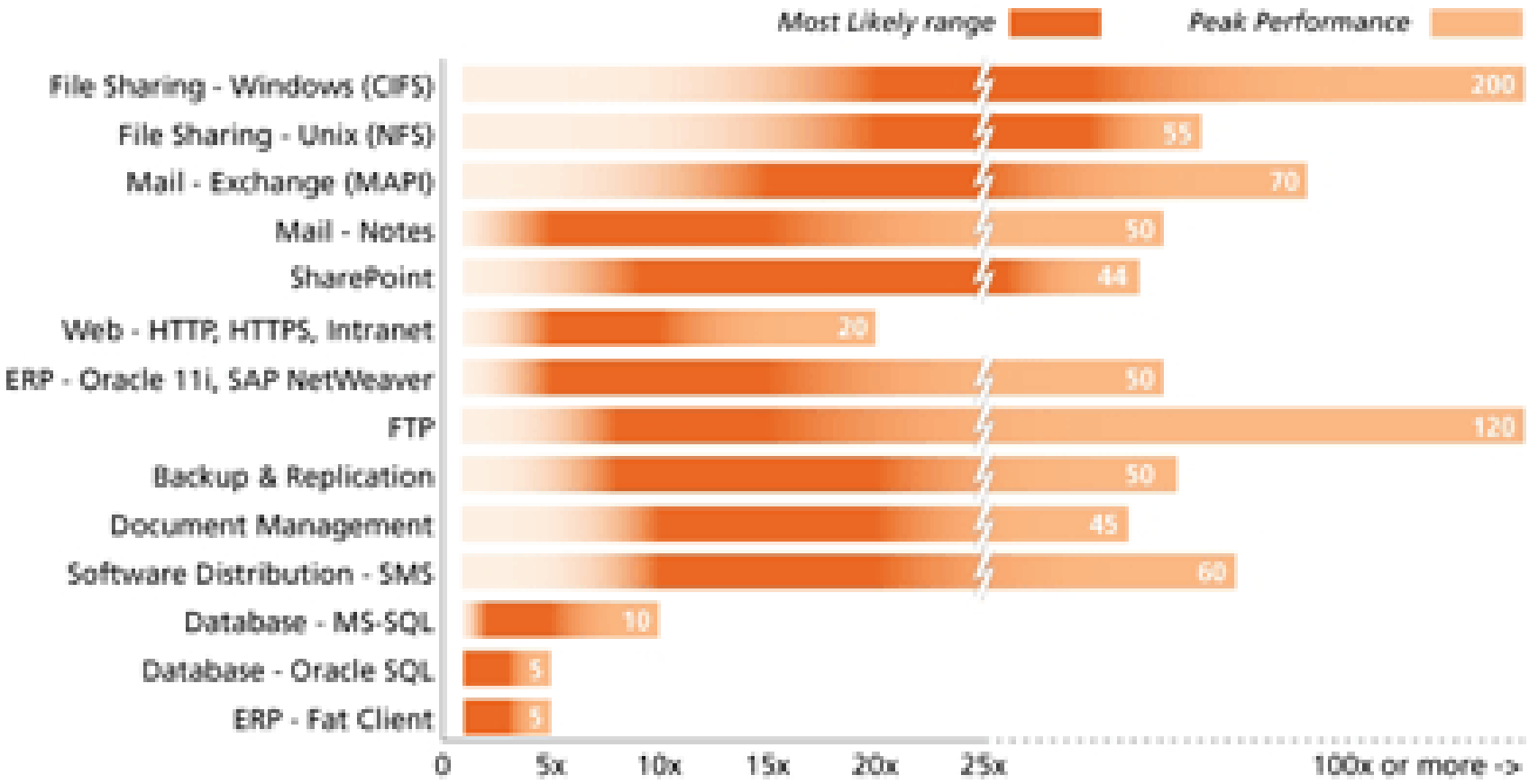


Source: http://etherealmind.com/trill-spb-spanning-tree-stp-risk-impact-design-reduce-domain-size/#The_TRILL_Effect

New Technologies I Have Worked With

Technology	Description	Benefit
Virtualization with VMware	Allows multiple Virtualized servers on one physical server	Simplifies the operations environment. It also allows greater efficiencies in modern Data Centers because it helps conserve: electrical power, hardware expenditures, Data Center space, etc.
Data De-duplication with Avamar	Keep synchronized backups of data between two sites	Increases backup speed.
WAN Optimization using Riverbed Steelhead devices	Increases WAN performance giving performance like a LAN	Easier data transfers and better performance of distributed applications.
Virtual Core Switch Management using Cisco VSS.	Allows management of Data Center Core switches as a single device	Resiliency, simplified management.
High Performance LAN using Cisco Nexus 7000 as Core Switch	Modern 40 Gigabit Ethernet Switch	High Performance, Modern Switch to “Future Proof” the Data Center LAN

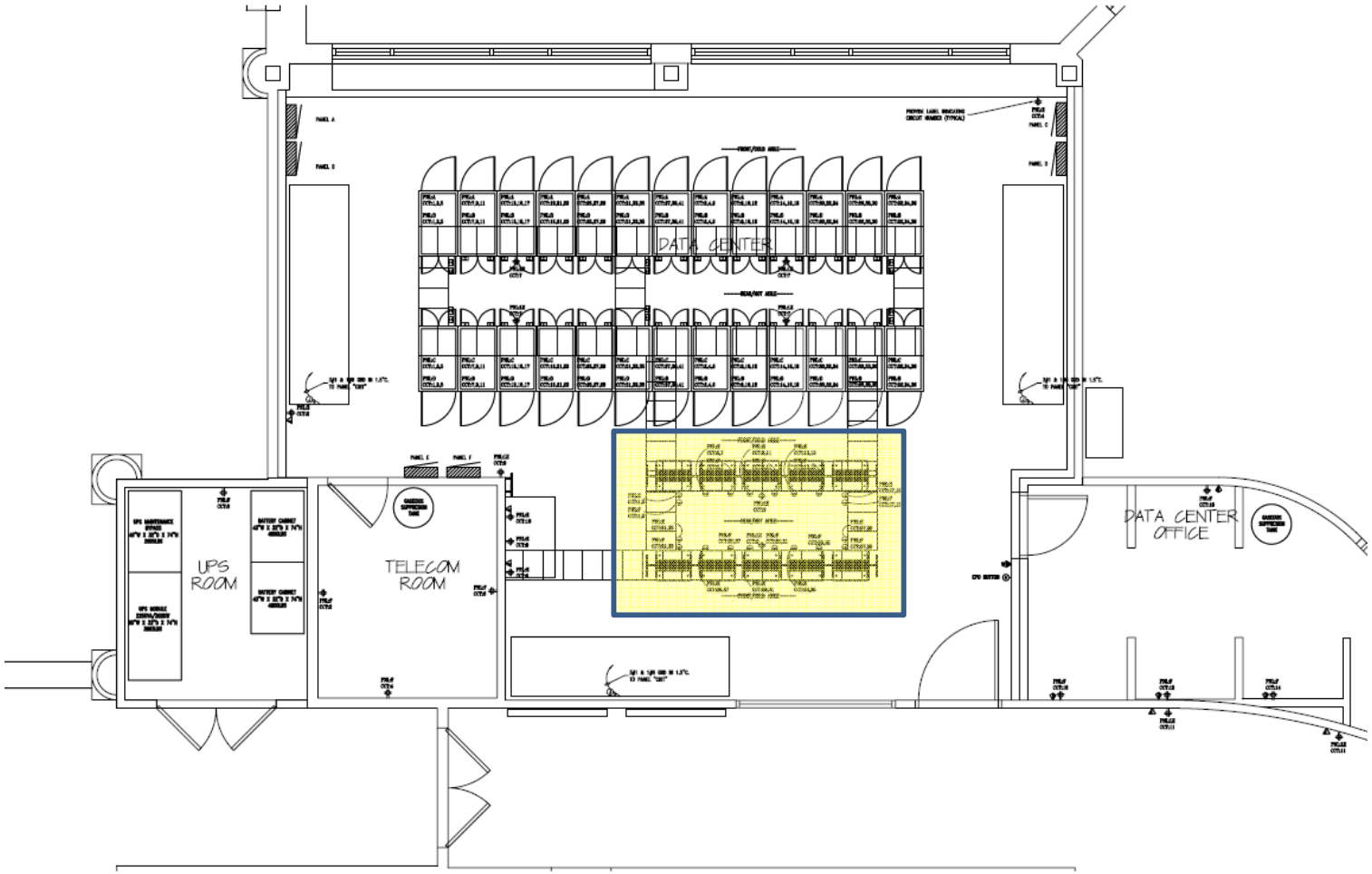
Riverbed – WAN Optimization



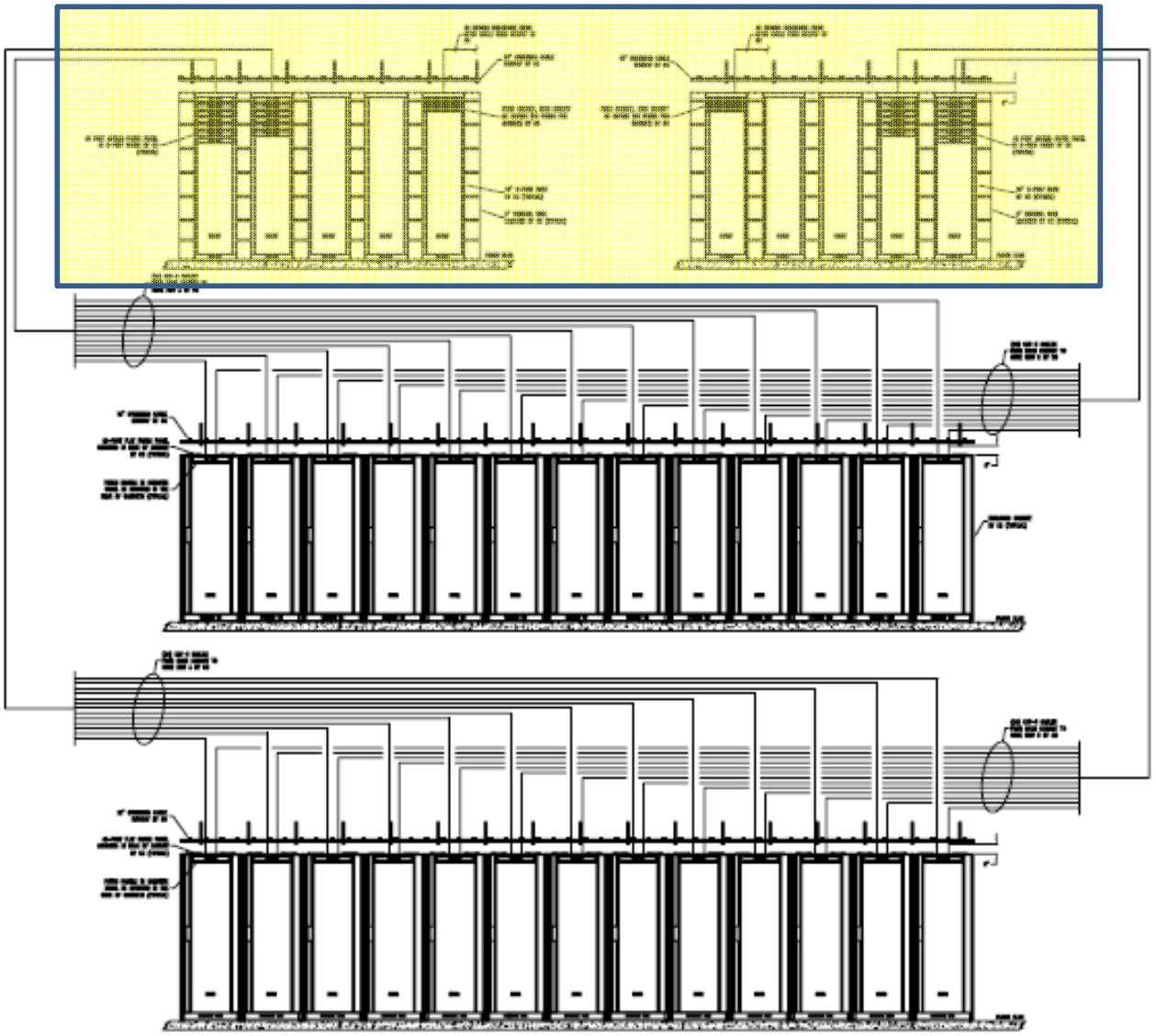
Source: Riverbed Whitepaper

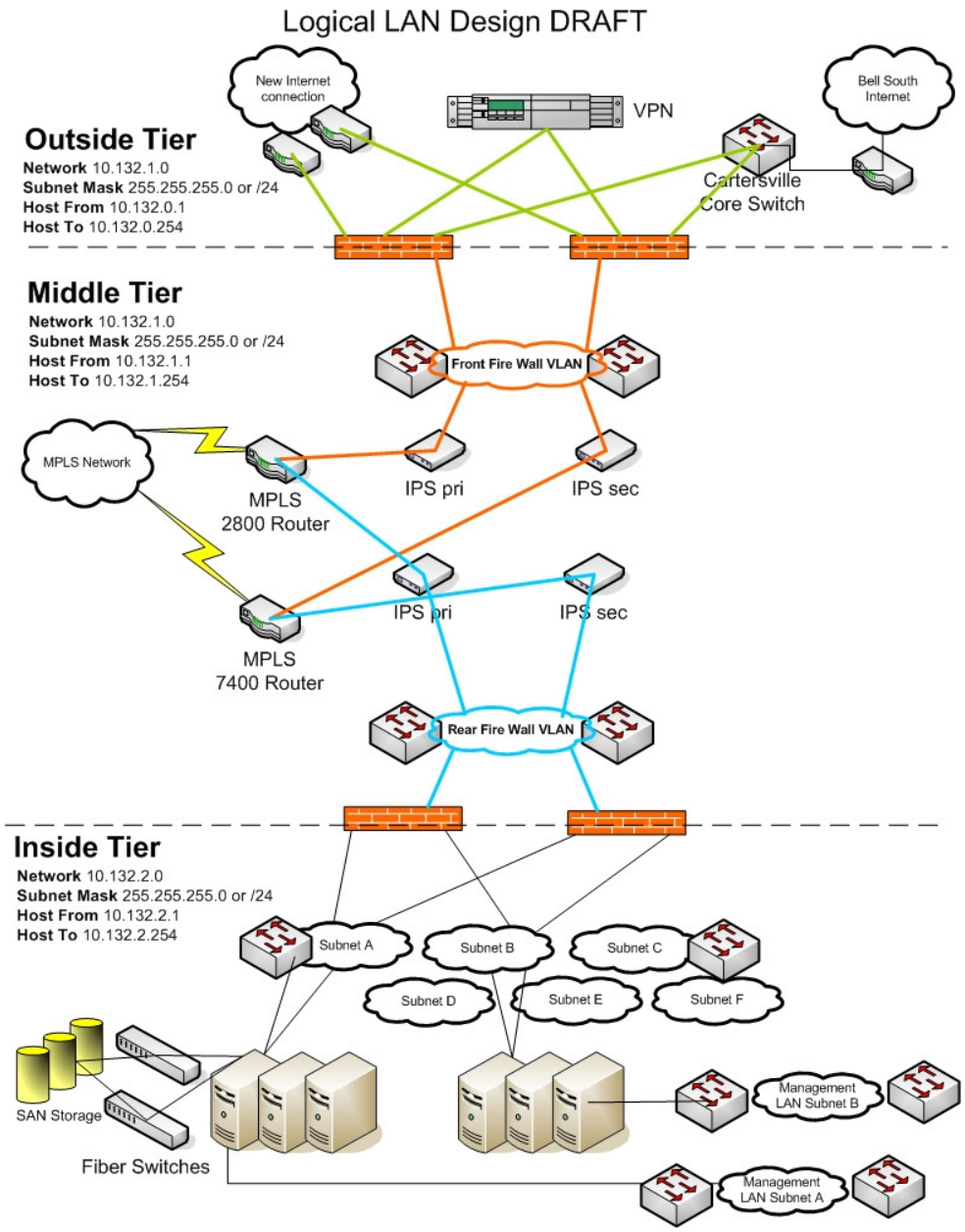
A NOTABLE PAST ACCOMPLISHMENT

Data Center Overhead View



Horizontal View



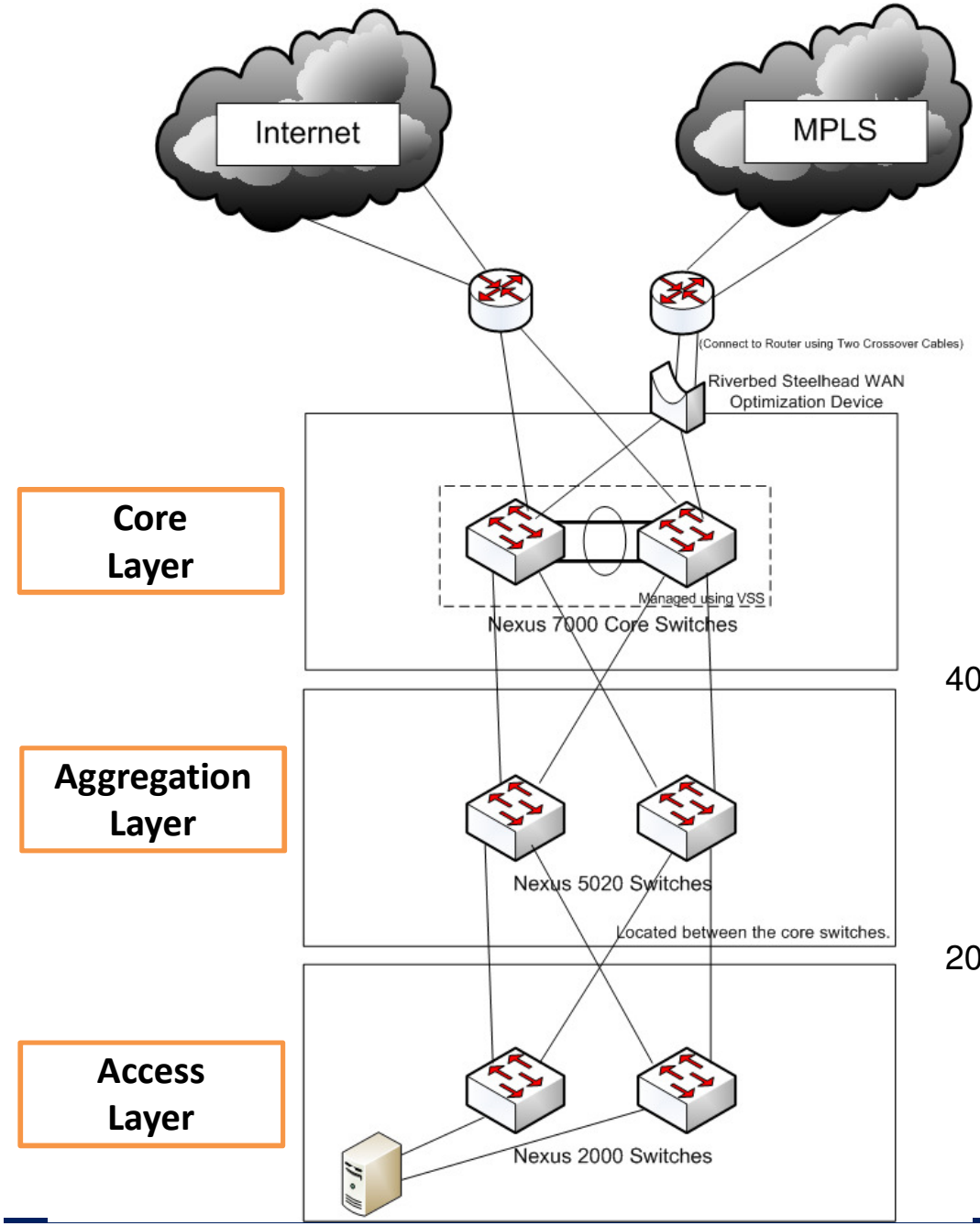


Logical Network Diagram

(Original)

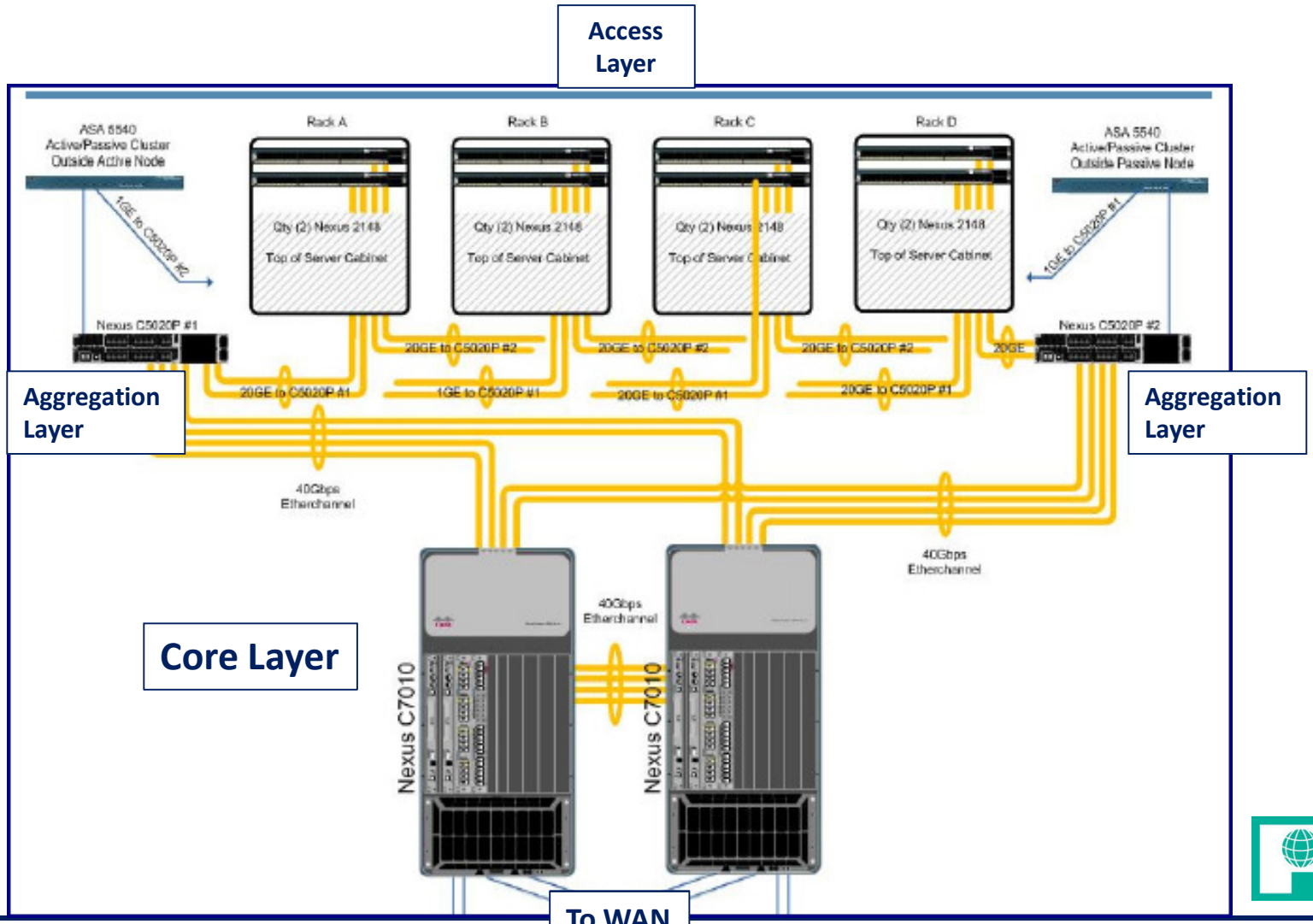
There were problems with this…

Logical Network Diagram



(Revised)

Physical Network Equipment Diagram



LOOKING FORWARD

The Impact of the Cloud Computing Paradigm

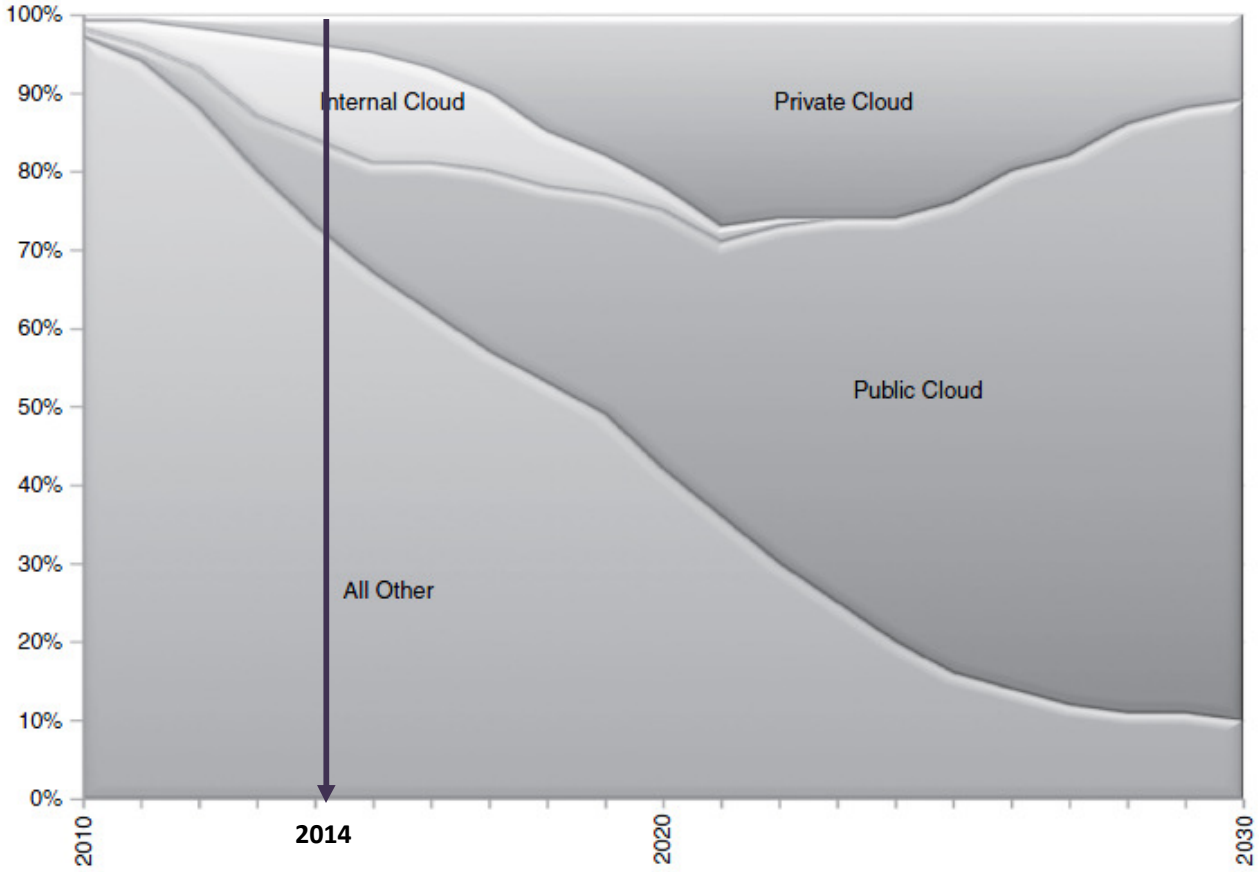


Figure 9.6 The author's predictions for the role of clouds vs. non-cloud-based computing over the next 20 years. Today, less than 3% of computing is done via clouds. Twenty years from now, public clouds will be the dominant approach for corporate IT services. Private clouds, which will initially grow to more than 35% of all IT, will shrink back to under 25%; internal clouds will all but disappear; and the remaining percentage of do-it-yourself IT (such as corporations with their own data centers) will be only 10%.

The Cloud at Your Service, by J. Rosenberg and A. Mateos, 2011

Value Proposition

- At Panduit I would:
  - Provide great solutions for customers
  - Provide leadership and vision to develop world-class Data Center planning and optimization tools
  - Be a great Team Player

Conclusion

- Data Center Networking Architecture is more critical than ever for the Modern Data Center
- The rapid pace of change in in Information Technology and in Business has created a greater need than ever to keep up and stay ahead
- I believe that I could be a valuable contributor to the Panduit Team

Questions?

SUPPLEMENTAL SLIDES

William F. Slater, III

- **Current Position – Project Manager / Sr. IT Consultant at Slater Technologies, Inc.** Working on projects related to
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  - Security reviews and auditing
  - ISO 27001 Project Implementations
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- MS in Computer Information Systems, University of Phoenix, 2004
- BS in Engineering Technology with a major in Computer Systems Technology, University of Memphis
- Published author & editor: Magazines, books, courseware
- Subject Matter Expert in Cybersecurity for Caveon Courseware and Testing
- Happily married (since December 2000) to Joanna K. Roguska, who is a professional web developer
- Native of Memphis, Tennessee
- Resident of Chicago / Chicagoland area since 1986 (except for the period between May 1991 and December 1994)

1977 - First Job Out of College

Strategic Air Command Headquarters
Offutt Air Force Base, NE
Circa late 1970s – UNCLASSIFIED Configuration

2LT William F. Slater, III
United States Air Force
Computer Systems Staff Officer
July 1977

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A Career in Information Technology

William F. Slater III

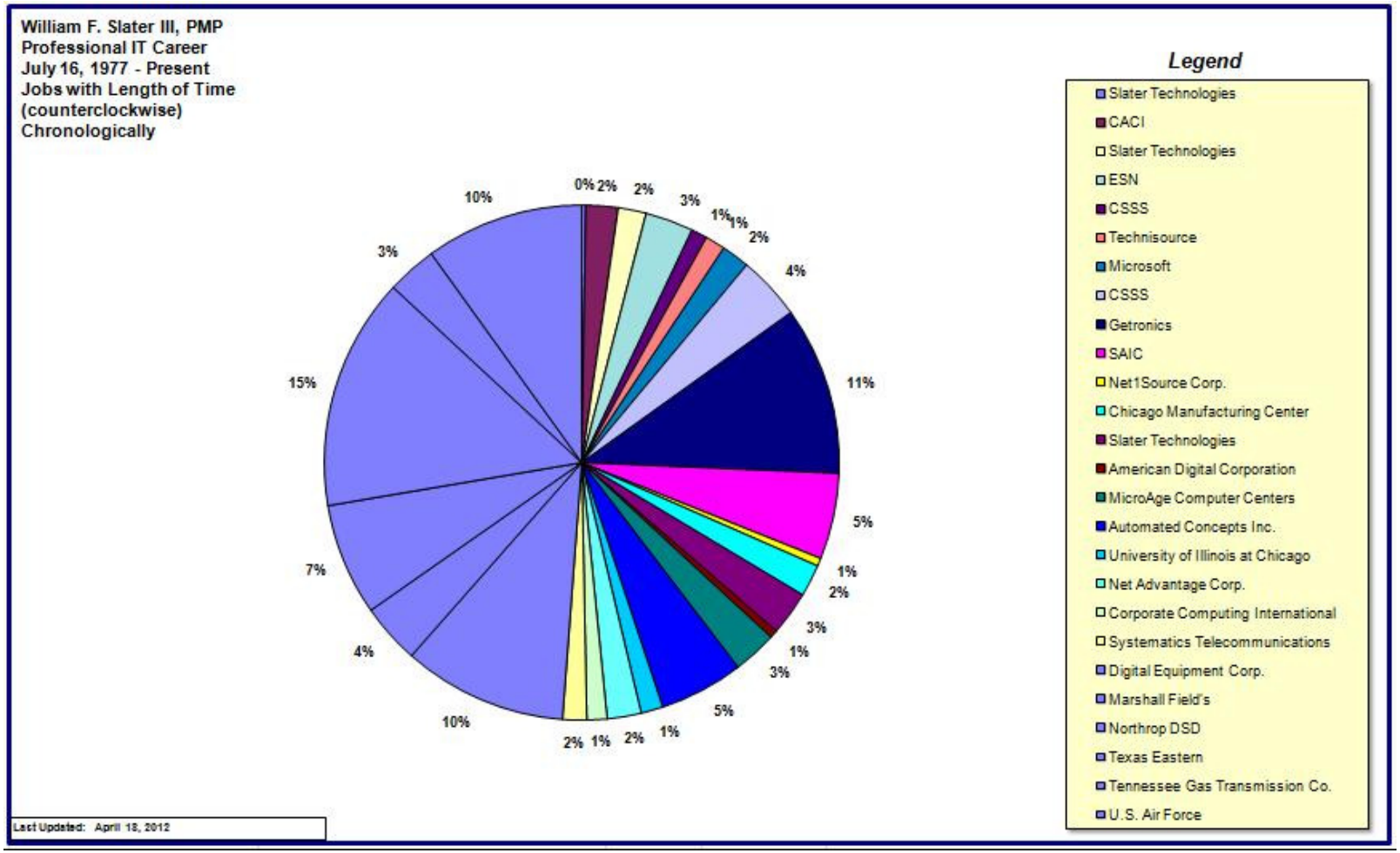
MBA, M.S., PMP, CISSP, SSCP, CISA, Security+, MCSE, MCITP, ITIL v3, ISO 27002, ISO 20000

Career Experiences in Information Technology

Last Updated on April 18, 2012

Job No.	Employer	Location(s)	Length In Months	Hours / Week	Start and End Dates	Position(s)
26	Slater Technologies	Chicago, IL	1	40	3/15/2011 - Present	Sr. IT Security Consultant / IT Project Manager
25	CACI	Chicago, IL and Arlington, VA	8	55	7/25/2011 - 3/14/2012	Program Manager on a large application development project at the U.S. Dept. of Veterans Affairs
24	Slater Technologies	Chicago, IL	7	40	1/30/2011 - 7/14/2011	Sr. IT Security Consultant / ISO 27001 Implementation Consultant / Architect in ISMS
23	ESN	Arlington, VA & Hines, IL	12	52	1/25/2010 - 1/30/2011	Project Manager - Team Manager managing a 14-person Network Security Team
22	CSSS	Peterson AFB, CO	4	50	9/28/2009 - 1/22/2010	ITIL Project Manager - Managing a 12-person ITIL Implementation Project
21	Technisource	Itasca, IL	5	50	11/10/2008 - 3/13/2009	Data Center Technical Project Manager - Consultant on Data Center Build and Migration Project
20	Microsoft	Northlake, IL	7	100	03/24/2008 - 10/27/2008	Data Center Manager of the World's Largest Data Center - Leading a 21-person Team
19	CSSS	Hines, IL	16	50	11/28/2006 - 3/23/2008	Program Manager at Hines VA managing a 22-person Infrastructure Team & Projects
18	Getronics	Naperville, IL	42	50	3/1/2003 - 11/3/2006	Data Center Manager / Change Management Manager / Project Manager
17	SAIC	Naperville, IL	21.5	48	5/21/2001 - 2/28/2003	Process Technical Lead / Data Center Manager / Change Management Manager
16	Net1Source Corp.	Elk Grove Village, IL	2	45	2/19/2001 - 4/13/2001	Senior Technical Consultant
15	Chicago Manufacturing Center	Chicago, IL	8	48	7/3/2000 - 2/16/2001	Senior Business Advisor / Database Administrator
14	Slater Technologies	Chicago, IL	11	48	8/16/1999 - 7/1/2001	Project Manager / Senior Technical Consultant
13	American Digital Corporation	Chicago, IL	2	50	6/14/1999 - 8/16/1999	Senior Technical Consultant
12	MicroAge Computer Centers	Chicago, IL	11	45	6/21/1998 - 4/20/1999	IT Consultant / Project Manager / Network Analyst
11	Automated Concepts Inc.	Chicago, IL	21	45	09/09/96 - 06/19/98	IT Consultant / Network Analyst
10	University of Illinois at Chicago	Chicago, IL	5.5	48	03/27/96 - 9/06/96	Network Analyst
9	Net Advantage Corp.	Chicago, IL	8.5	50	06/01/95 - 02/07/96	Consultant
8	Corporate Computing International	Bannockburn, IL	5	75	12/29/94 - 05/31/95	Senior IT Consultant
7	Systematics Telecommunications	Twinsburg, OH	6	55	03/14/94 - 09/07/94	Client/Server Architect
6	Digital Equipment Corp.	Chicago, IL; Colorado Springs, CO; Merrimack, NH	41	48	06/18/90 - 3/11/94	Principal Software Specialist / Project Leader
5	Marshall Field's	Chicago, IL	15	40	03/14/89 - 06/07/90	Database Analyst
4	Northrop DSD	Rolling Meadows, IL	28	45	11/3/86 - 02/27/89	Database Analyst
3	Texas Eastern	Houston, TX	58	40	12/28/81 - 10/15/86	Database Analyst
2	Tennessee Gas Transmission Co.	Houston, TX	12.5	45	11/3/80 - 11/17/81	Programmer / Analyst II
1	U.S. Air Force	Offutt AFB, NE	39.5	45	7/15/77 - 10/22/80	Computer System Staff Officer
		Average of Months	15.29	50.27	Average Hours / Week	
		Median of Months	9.75	48.00	Median Hours / Week	
		Standard Deviation of Months	14.75	12.24	Std Dev of Hours / Week	
		Total of Months	397.50	19,982	Total of Hours	

A Career in Information Technology



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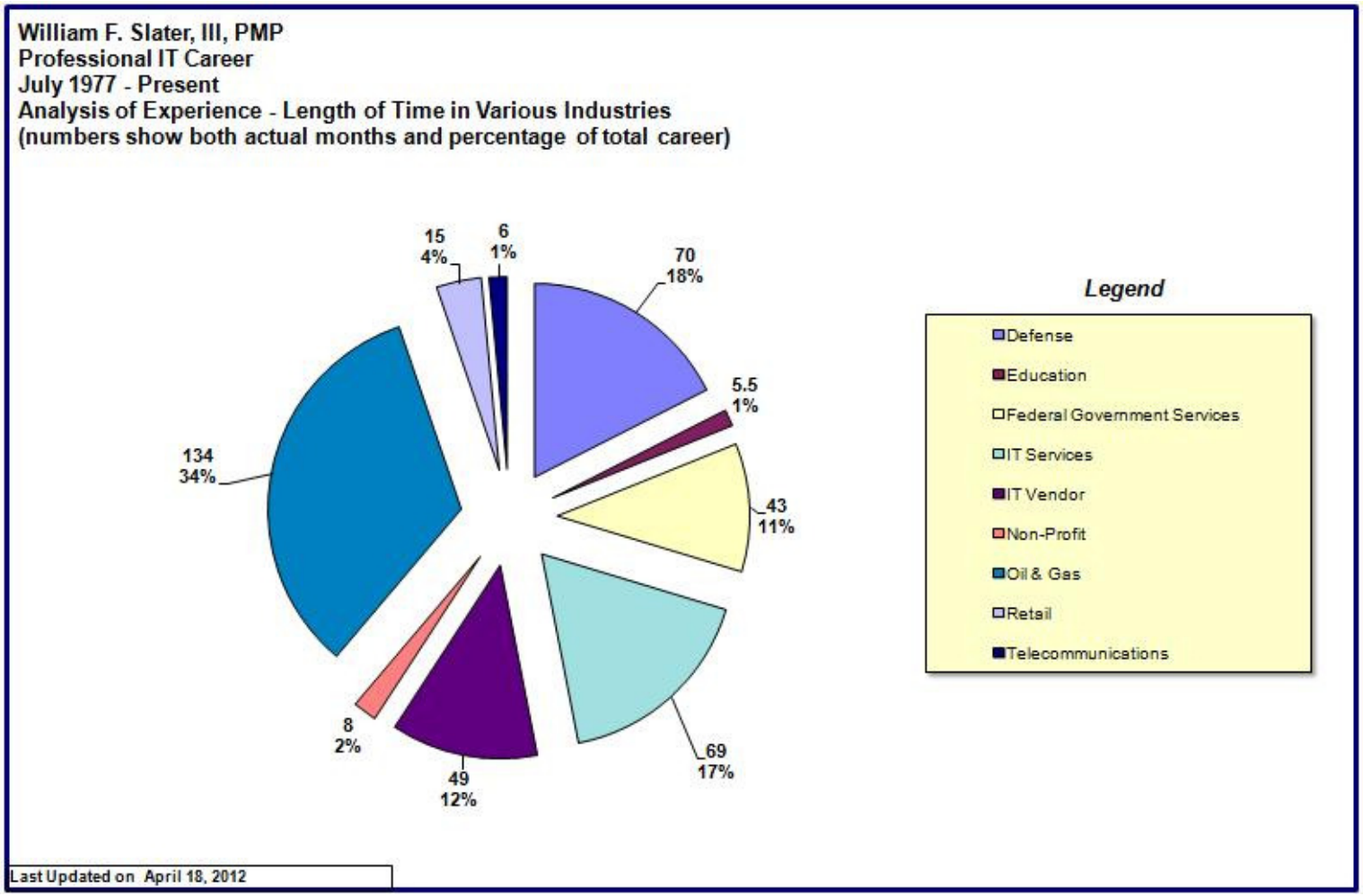
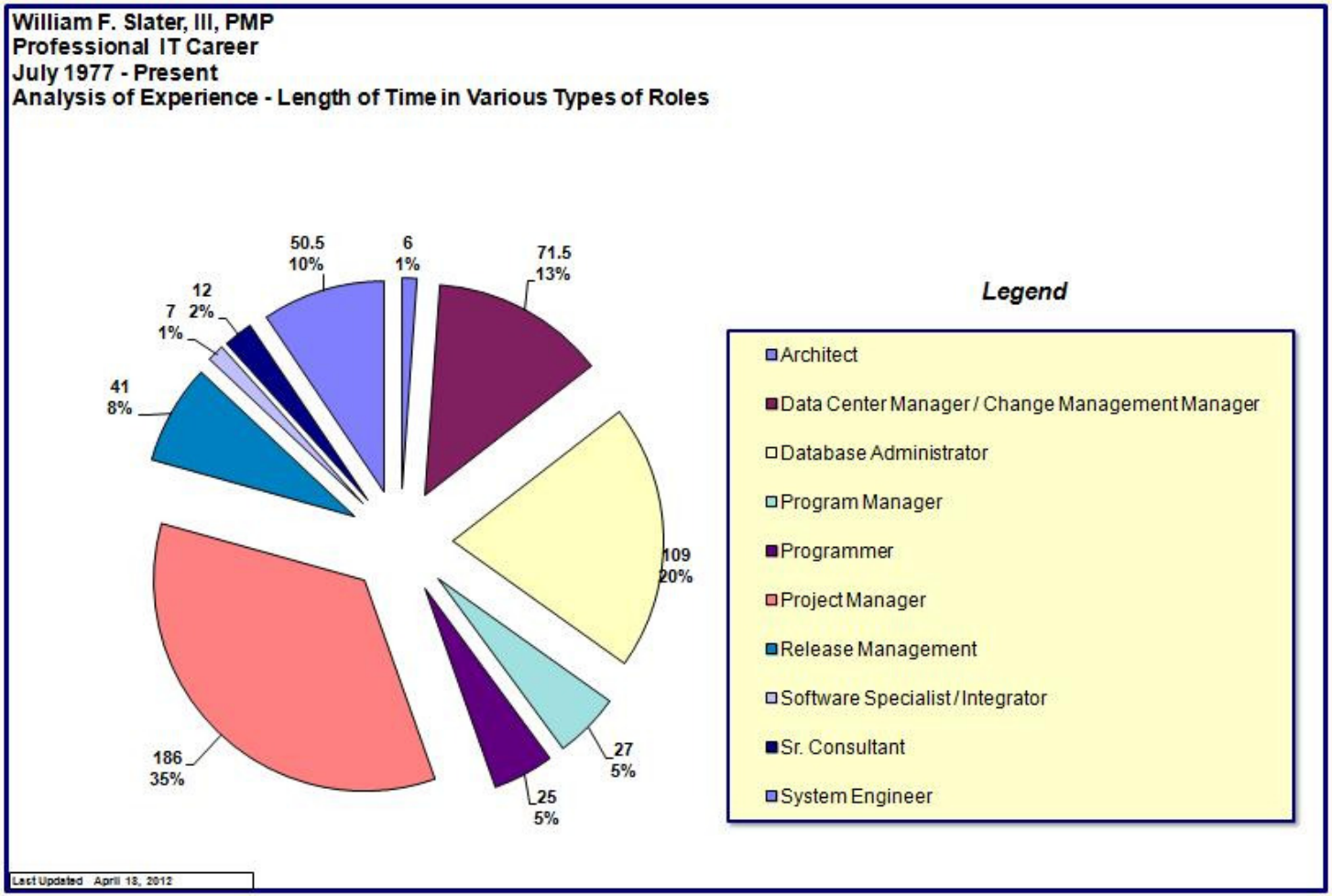
A Career in Information Technology



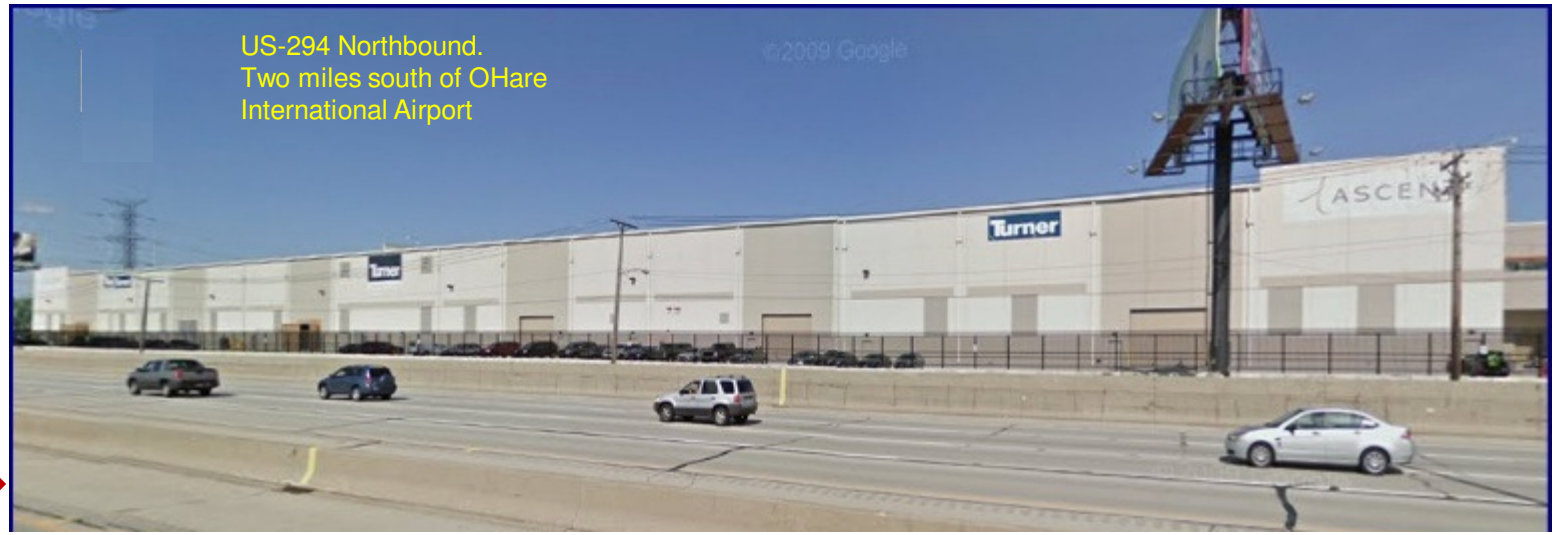
A Career in Information Technology



Financial Management Accomplishments

- **2001 - 2006** - BP Naperville Data Center, $1.5 million annual OpEx budget, and $1 million in annual projects
- **2006 - 2008** - U.S. Department of Veterans Affairs, 22-person team, $4.3 million annual OpEx budget
- **2008** - Microsoft Data Center Manager, $43 million annual OpEx budget, $1 billion in CapEx budget
- **2008 – 2009** - Komatsu Data Center Build and Migration Project (Technisource), $4 million CapEx budget and $5.5 million in cost savings
- **2009 - 2010** - U.S. Air Force, 14-person Team, $1.3 million annual OpEx budget
- **2010 - 2011** - U.S. Department of Veterans Affairs, 14-person team, $2.2 million annual OpEx budget
- **2011 - 2012** - U.S. Department of Veterans Affairs, 48-person team, $5.5 million annual OpEx budget

The Microsoft Chicago Data Center – Microsoft's Flagship Cloud Data Center

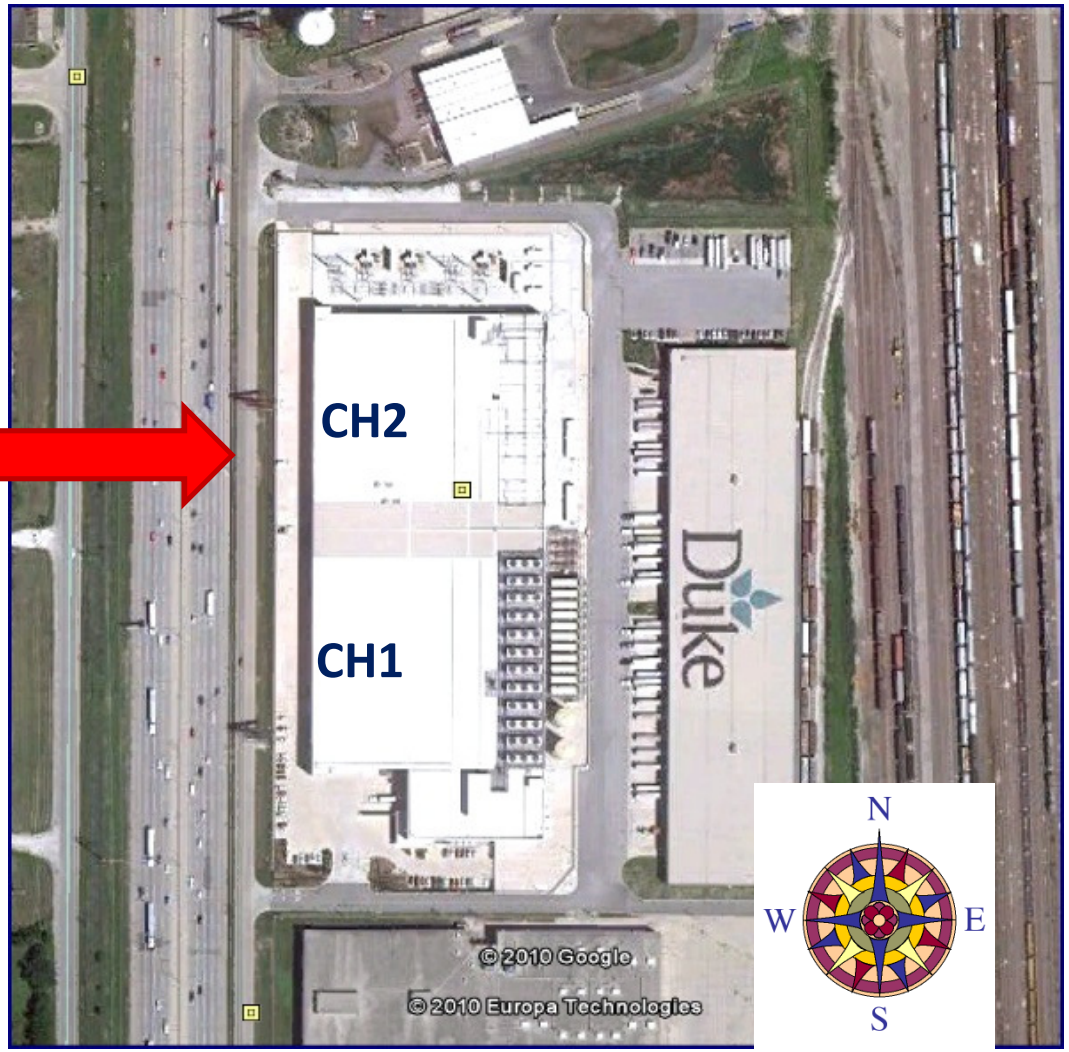


Microsoft Chicago Data Center in Northlake, IL. Actual street view photo from Google Maps

Microsoft Chicago Data Center in Northlake, IL. Actual architect's drawing from 2007 - 2008

The Microsoft Chicago Data Center – Microsoft's Flagship Cloud Data Center

CH1						
		Colo Rooms		Cabinets	Servers per Cabinet	
Second Floor		4		240	42	40,320
				Modules		
First Floor		1		56	2400	134,400
CH2						
		Colo Rooms		Cabinets	Servers per Cabinet	
Second Floor		4		240	42	40,320
				Modules		
First Floor		1		48	2400	115,200
					Total Production Servers	330,240



601 Northwest Hwy, Northlake, IL

Size:	705,000 square feet
Power:	120 MW (enough to power 87,000 homes)
Critical Load for IT Equipment:	60 MW
No. of Physical Servers:	> 330,000 Servers

CH1 CHICAGO DATA CENTER

Microsoft Chicago Data Center Operations Team Summer 2008

Technical Job Skills

- Project Management
- Program Management
- Data Center Management
- Infrastructure Management
- Cybersecurity
- Security Assessment
- Security Design
- Security Management
- Mentoring
- Troubleshooting
- Problem Solving
- Systems Administration
- System Architecture and Design
- Database Design, Implementation, and Administration
- Network Design, Implementation and Administration
- Intranet Design and Implementation
- Disaster Recovery Planning and Business Continuity Planning and Management
- Technology Assessment
- System Analysis & Design
- Messaging – MS Exchange 2000 and 2003, Outlook e-mail clients
- OO System Analysis & Design
- MS Project , MS Office, and Visio
- **System Development Languages:** VB .NET 2003, Visual Basic 6, Java 2, J2EE, C#, C++, PERL, and UML
- **Databases:** Oracle, MS SQL Server, Access
- **Scripting:** PERL, VBScript, ADSI
- Web Authoring/Web Publishing
- System Performance Tuning
- GUI Analysis, Design and Review
- Technical Writing, Documentation, and Editing
- Technical Training
- Quality Management
- Safety Management
- **Service Management Methodologies / Frameworks:** ISO 20000, ITIL v3, ITIL v2, COBIT
- **System Development Methodologies:** Agile, SCRUM, RAD, JAD, RUP, MethodOne, SDLC, Waterfall.
- **Project Management Methodologies:** PMI PMBOK, PMBOK Lite, BP, Customized Project Management Methodologies, MethodOne, U.S. Air Force

Hardware

- Servers (Digital , HP, Dell, and IBM brands)
- IBM PCs and compatibles (laptops, desktops and towers) especially: COMPAQ, DELL, IBM, NEC, DEC, GATEWAY 2000
- Tablets: MS Surface, Kindle Fire
- VAXs from VAX 11/780 through VAX 8500
- Modems
- Printers
- Routers
- VPN Concentrators
- Switches
- Hubs
- Wireless devices - 802.11a / b / g / n devices

- NetApps NAS devices
- Network interface cards – Ethernet and WLAN
- SCSI
- RAID Controllers
- EISA, ISA, and PCI
- RAID 0, 1, 5, 10 disk arrays
- CD ROM drives (SCSI and IDE), etc.
- Older Stuff: IBM mainframes 308x series and 3090 series, Honeywell 60xx,

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Soft Job Skills & Attributes

- Very strong People Skills
- Very strong Leadership Skills
- Writing
- Speaking
- Good Listener
- Teaching
- Strong intuition
- Empathetic
- Enthusiastic
- Mentoring
- Preparing and leading meetings
- Friendly
- Helpful
- Kind
- Trustworthy
- Loyal

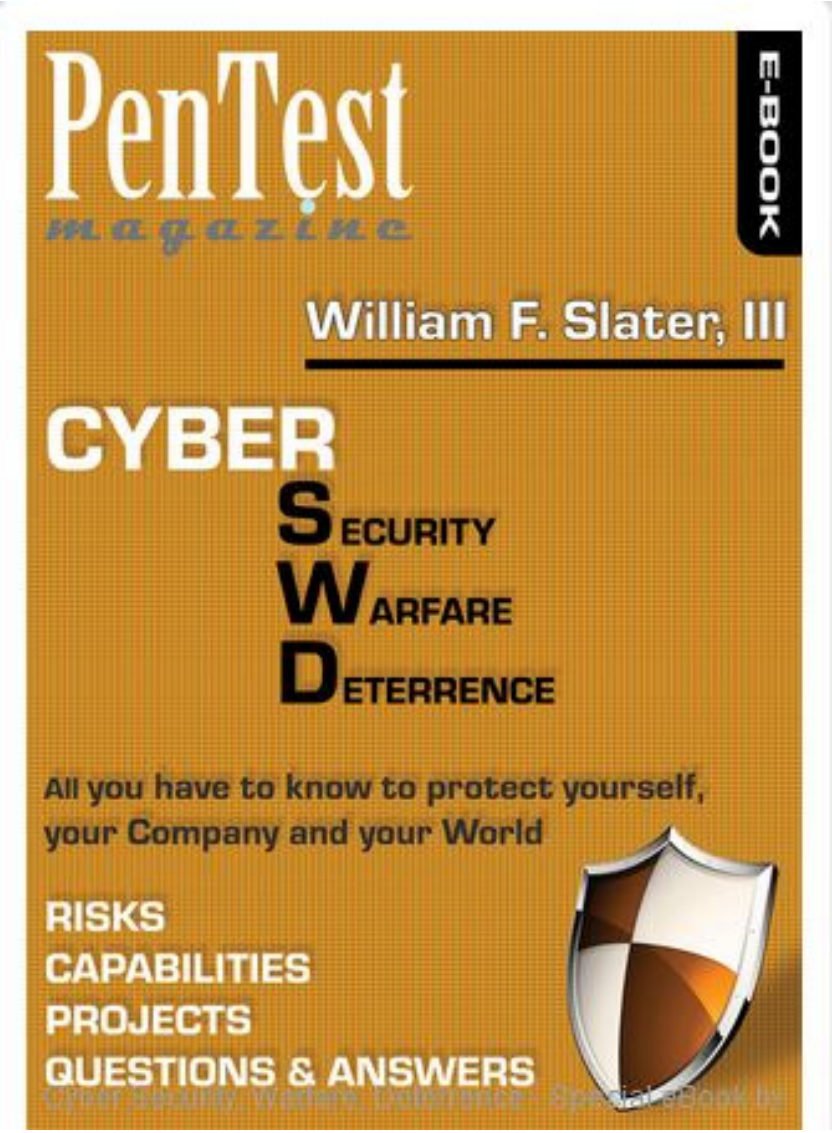
Certifications

- PMP
- ITIL Foundation Certification v3
- Certified Data Center Professional
- CISSP
- SSCP
- CISA
- ISMES
- ISFS
- MCITP in Project Management
- MCITP in Windows Server 2008
- MCITP in Vista
- MCSE 2003: Security
- MCSE 2000: Security
- MCSA 2003: Security
- MCSA 2000: Security
- MCSE 2003: Messaging
- MCSE 2000: Messaging
- MCSA 2003: Messaging
- MCSA 2000: Messaging
- MCAD / MCSD in Visual Basic .NET
- MCAD / MCSD in C# .NET
- MCDBA SQL Server 2000
- MCDST in XP
- MSTS: Windows Server 2008 Active Directory: Configuration
- MSTS: Windows Server 2008 Applications Infrastructure: Configuration
- MSTS: Windows Server 2008 Network Infrastructure: Configuration
- MSTS: Microsoft Office Visio 2007, Application Development
- MSTS: Microsoft Office Project 2007, Managing Projects
- MSTS: Microsoft Windows Vista: Configuration
- MCP in Managing, Organizing and Delivering IT Solutions by Using MS Solutions
- IT Project+
- Security+
- Server+
- A+
- Network+
- i-Net+

An eBook was published

- William F. Slater III
- June 10, 2013
- Collection of articles and documents related to cybersecurity, risk management and cyberwarfare
- You can read about the book and this link:

  http://billslater.com/ebook1



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Solving a Project Management Problem:

How to Handle the Challenges of Accurate Time Tracking and Reporting

When Handling Multiple High-Visibility, Complex Projects and Heavy Multi-tasking Every Day

William F. Slater, III, PMP

March 2013

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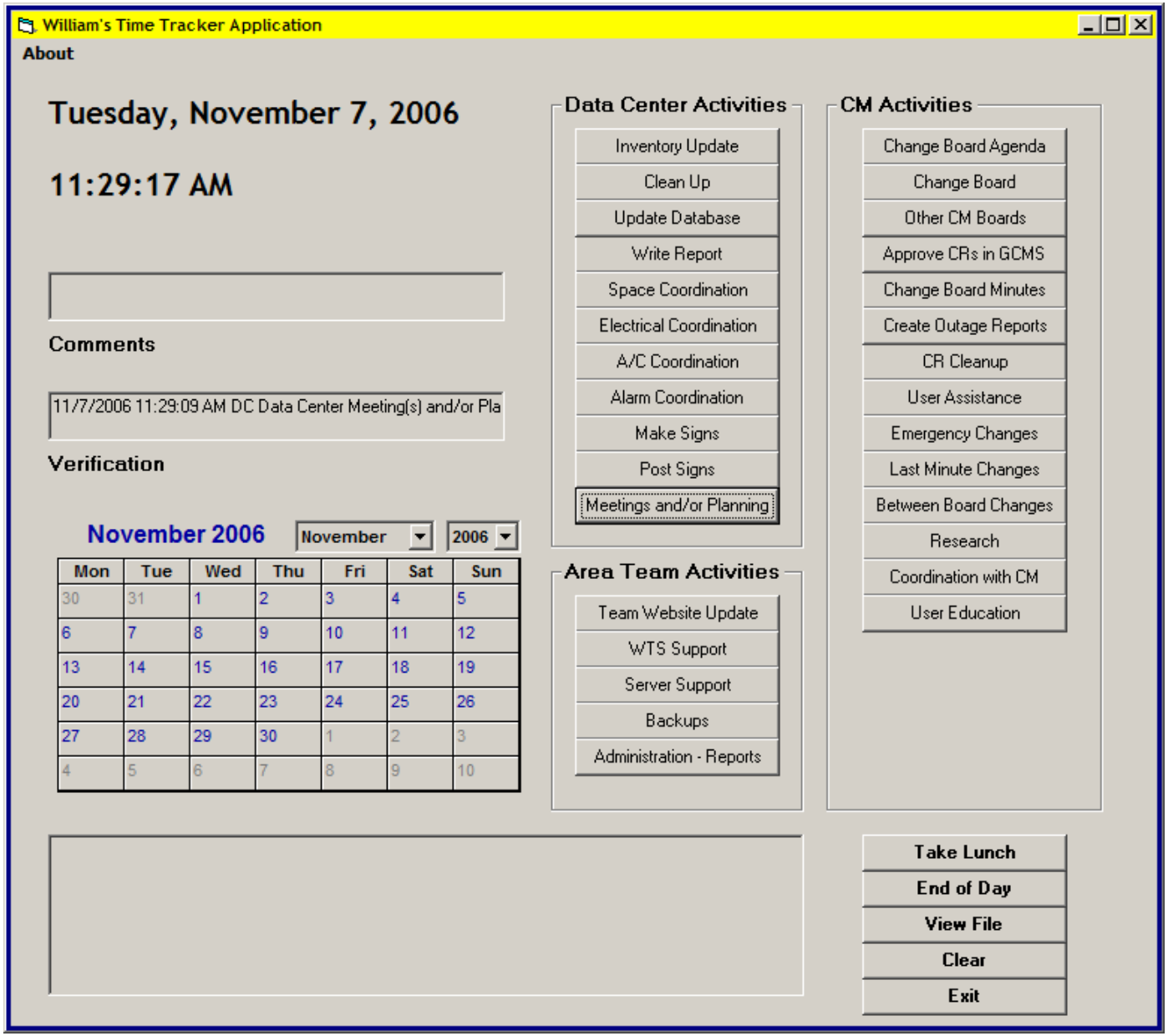
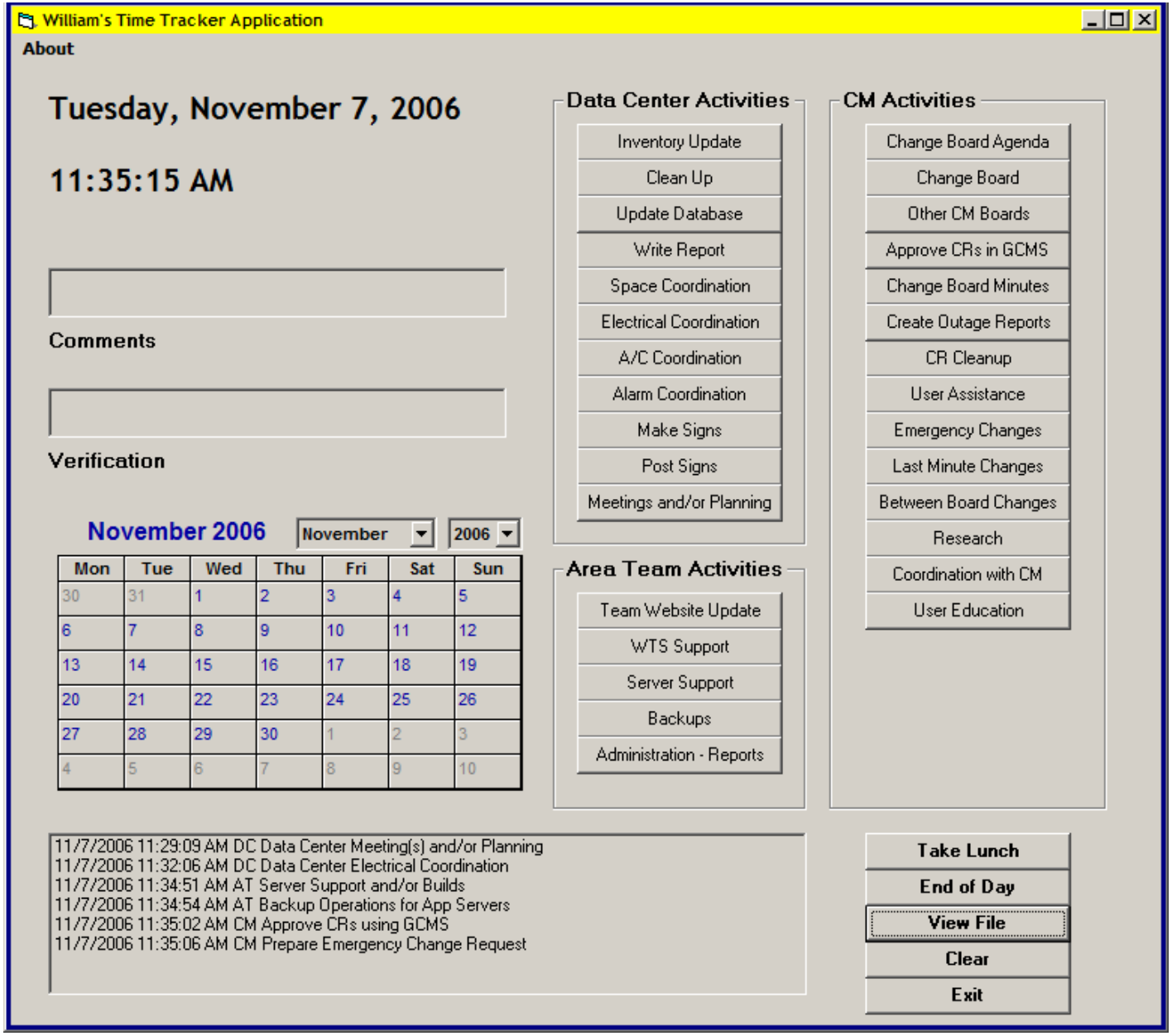
(I designed, wrote and used this application)



Time Tracker Application Designed and Written in Visual Basic
By William F. Slater, III in July 2002



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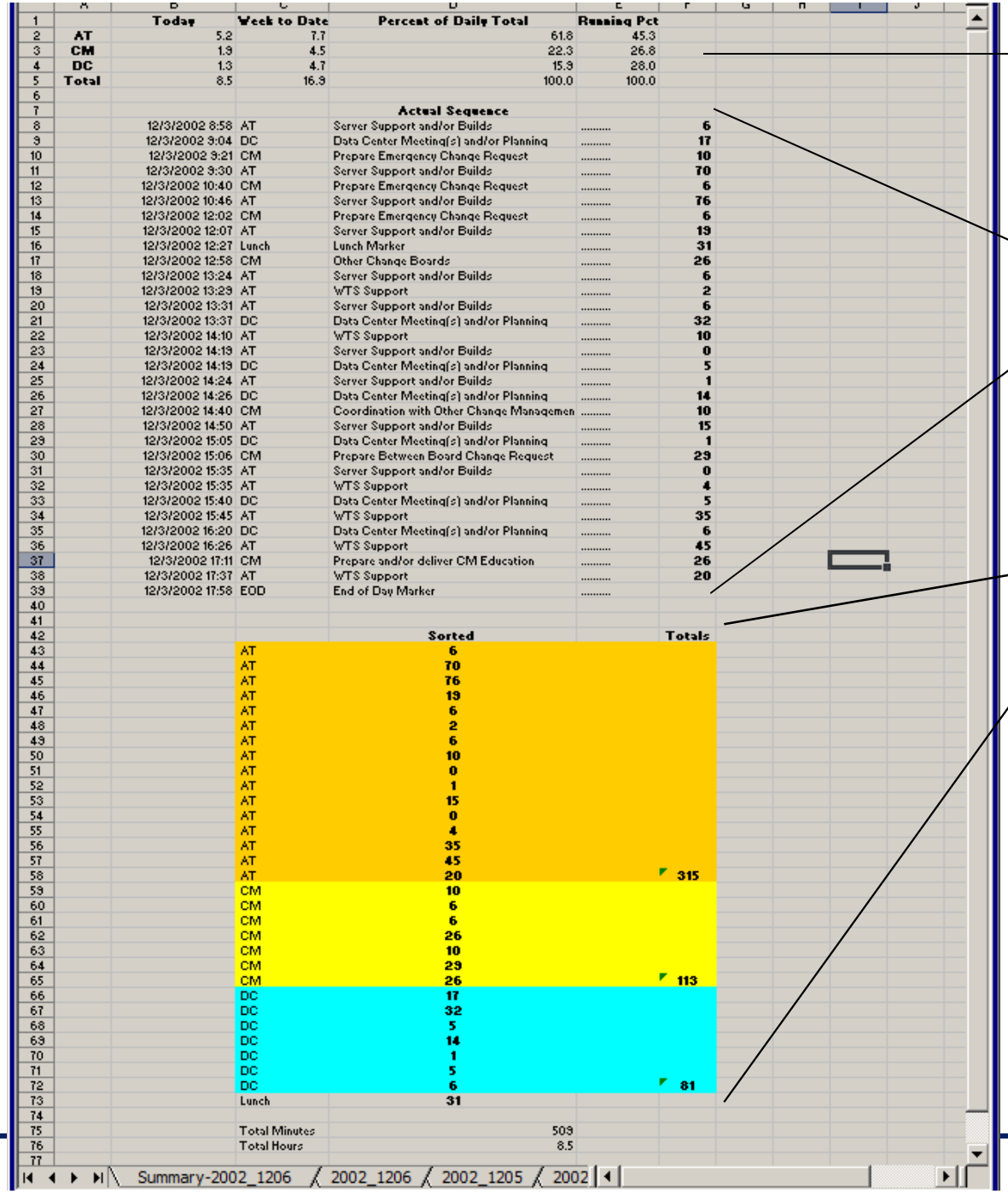


	Today	Week to Date	Percent of Daily Total	Running Pct
AT	5.2	7.7	61.8	45.3
CM	1.9	4.5	22.3	26.8
DC	1.3	4.7	15.9	28.0
Total	8.5	16.9	100.0	100.0

Actual Sequence

12/3/2002 8:58	AT	Server Support and/or Builds	.....	6
12/3/2002 9:04	DC	Data Center Meeting(s) and/or Planning	.....	17
12/3/2002 9:21	CM	Prepare Emergency Change Request	.....	10
12/3/2002 9:30	AT	Server Support and/or Builds	.....	70
12/3/2002 10:40	CM	Prepare Emergency Change Request	.....	6
12/3/2002 10:46	AT	Server Support and/or Builds	.....	76
12/3/2002 12:02	CM	Prepare Emergency Change Request	.....	6
12/3/2002 12:07	AT	Server Support and/or Builds	.....	19
12/3/2002 12:27	Lunch	Lunch Marker	.....	31
12/3/2002 12:58	CM	Other Change Boards	.....	26
12/3/2002 13:24	AT	Server Support and/or Builds	.....	6
12/3/2002 13:29	AT	WTS Support	.....	2
12/3/2002 13:31	AT	Server Support and/or Builds	.....	6
12/3/2002 13:37	DC	Data Center Meeting(s) and/or Planning	.....	32
12/3/2002 14:10	AT	WTS Support	.....	10
12/3/2002 14:19	AT	Server Support and/or Builds	.....	0
12/3/2002 14:19	DC	Data Center Meeting(s) and/or Planning	.....	5
12/3/2002 14:24	AT	Server Support and/or Builds	.....	1
12/3/2002 14:26	DC	Data Center Meeting(s) and/or Planning	.....	14
12/3/2002 14:40	CM	Coordination with Other Change Managemen	.....	10
12/3/2002 14:50	AT	Server Support and/or Builds	.....	15
12/3/2002 15:05	DC	Data Center Meeting(s) and/or Planning	.....	1
12/3/2002 15:06	CM	Prepare Between Board Change Request	.....	29
12/3/2002 15:35	AT	Server Support and/or Builds	.....	0
12/3/2002 15:35	AT	WTS Support	.....	4
12/3/2002 15:40	DC	Data Center Meeting(s) and/or Planning	.....	5
12/3/2002 15:45	AT	WTS Support	.....	35
12/3/2002 16:20	DC	Data Center Meeting(s) and/or Planning	.....	6
12/3/2002 16:26	AT	WTS Support	.....	45
12/3/2002 17:11	CM	Prepare and/or deliver CM Education	.....	26
12/3/2002 17:37	AT	WTS Support	.....	20
12/3/2002 17:58	EOD	End of Day Marker	.....	

	Sorted	Totals
AT	6	
AT	70	
AT	76	
AT	19	
AT	6	
AT	2	
AT	6	
AT	10	
AT	0	
AT	1	
AT	15	
AT	0	
AT	4	
AT	35	
AT	45	
AT	20	315
CM	10	
CM	6	
CM	6	
CM	26	
CM	10	
CM	29	
CM	26	113
DC	17	
DC	32	
DC	5	
DC	14	
DC	1	
DC	5	
DC	6	81
Lunch	31	

Total Minutes	509
Total Hours	8.5

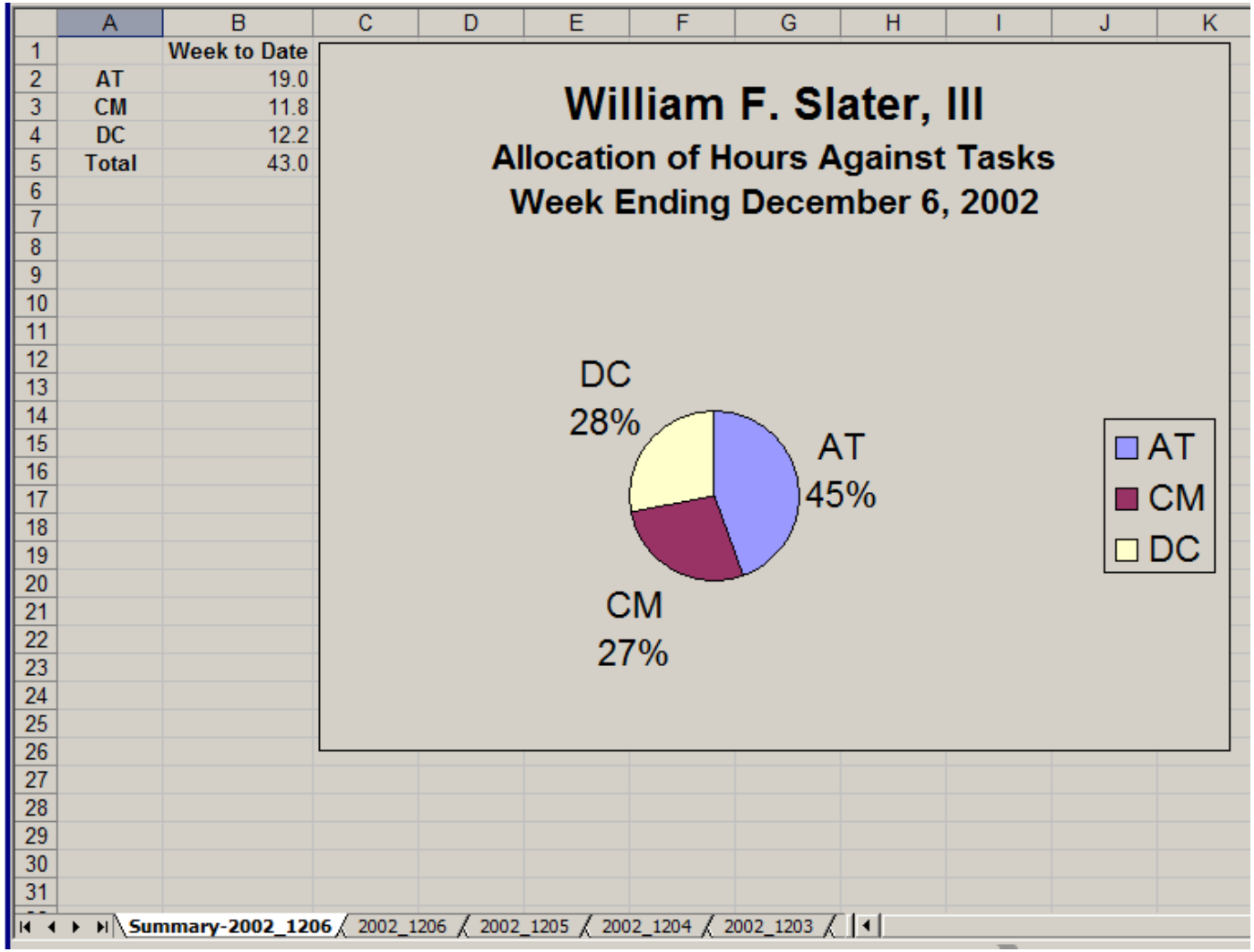
Summary-2002_1206 / 2002_1206 / 2002_1205 / 2002

Daily summary

Actual Activities in the Sequence that they occurred. with time Durations calculated by Excel

Sorted Activities With Time Durations

Using the Time Tracker Application Output with Excel for a Daily Summary Report. The Application was designed and written in Visual Basic By William F. Slater, III in July 2002



Using the Time Tracker Application Output with Excel for a Weekly Summary Report. The Application was designed and written in Visual Basic By William F. Slater, III in July 2002

Time Tracker 3.0
User Interface

William F. Slater, III

2008

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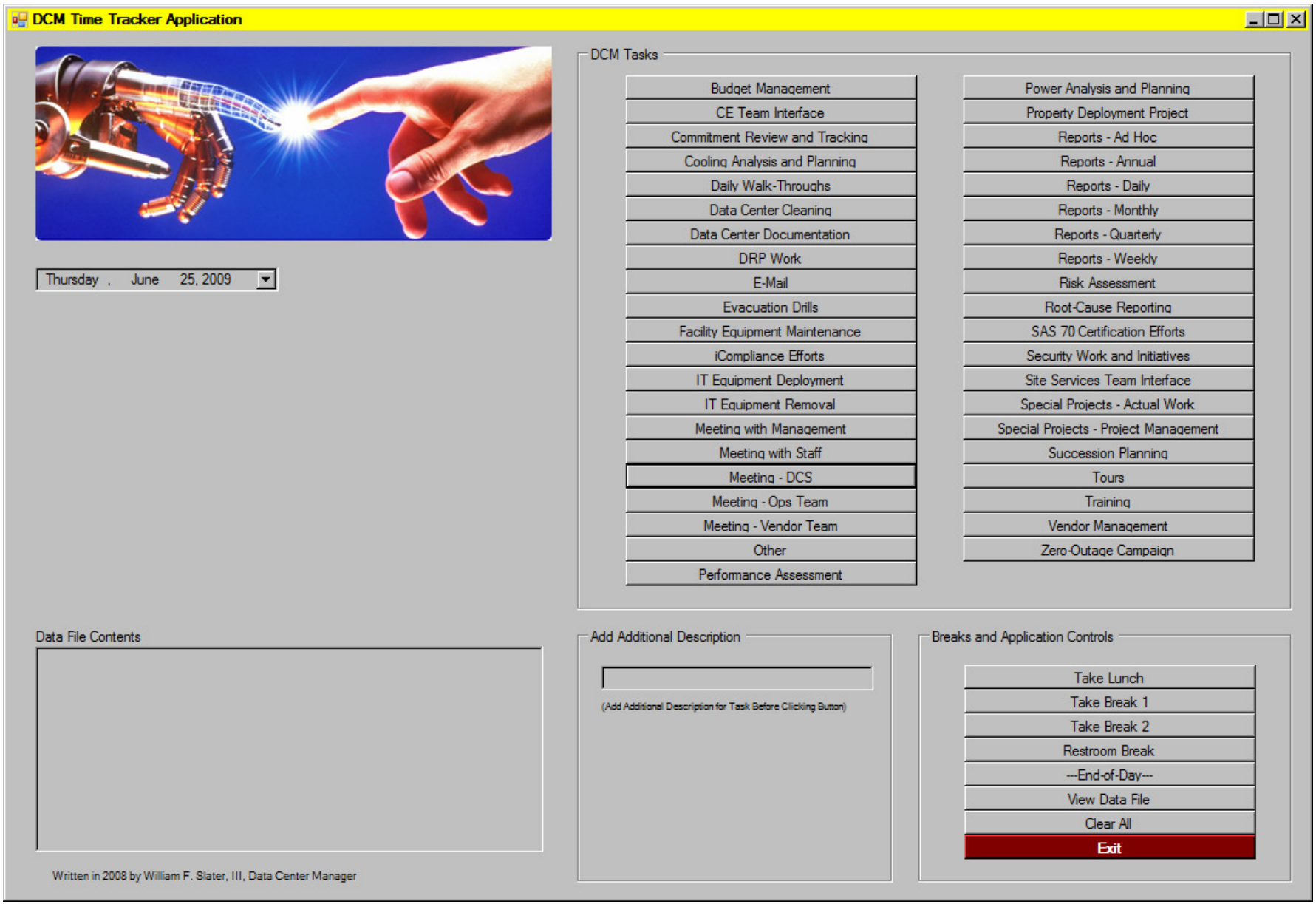

DCM Time Tracker Application
Thursday , June 25, 2009
DCM Tasks
Budget Management
CE Team Interface
Commitment Review and Tracking
Cooling Analysis and Planning
Daily Walk-Throughs
Data Center Cleaning
Data Center Documentation
DRP Work
E-Mail
Evacuation Drills
Facility Equipment Maintenance
iCompliance Efforts
IT Equipment Deployment
IT Equipment Removal
Meeting with Management
Meeting with Staff
Meeting - DCS
Meeting - Ops Team
Meeting - Vendor Team
Other
Performance Assessment
Power Analysis and Planning
Property Deployment Project
Reports - Ad Hoc
Reports - Annual
Reports - Daily
Reports - Monthly
Reports - Quarterly
Reports - Weekly
Risk Assessment
Root-Cause Reporting
SAS 70 Certification Efforts
Security Work and Initiatives
Site Services Team Interface
Special Projects - Actual Work
Special Projects - Project Management
Succession Planning
Tours
Training
Vendor Management
Zero-Outage Campaign
Data File Contents
Add Additional Description
(Add Additional Description for Task Before Clicking Button)
Breaks and Application Controls
Take Lunch
Take Break 1
Take Break 2
Restroom Break
---End-of-Day---
View Data File
Clear All
Exit
Written in 2008 by William F. Slater, III, Data Center Manager

Time Tracker 4.0
User Interface

William F. Slater, III

2010

NSSS Time Tracker Application

Friday , February 26, 2010

NSSS Scheduled Work | Shift Related Admin | General Admin & Control

NSSS Functional Activities

- ePO - Daily Report
- ePO - Weekly Report
- ePO - Weekly Reconcile
- ePO - Monthly Report
- ePO - Monthly Reconcile
- GTP - Conference Call
- GTP - Ticket Updates
- GTP - Spreadsheet Updates
- HIPS - IRC Nick
- HIPS - VISN 7 Report
- NIPS - Daily Report
- NIPS - Weekly Report
- Research - assorted
- Splunk - 221.7.91.31 Report
- Splunk - Monthly Report
- Splunk - Zero Day / Aurora
- Tag Selection
- Ticket Mgmt - NDO Mailbox
- Ticket Mgmt - other
- Other

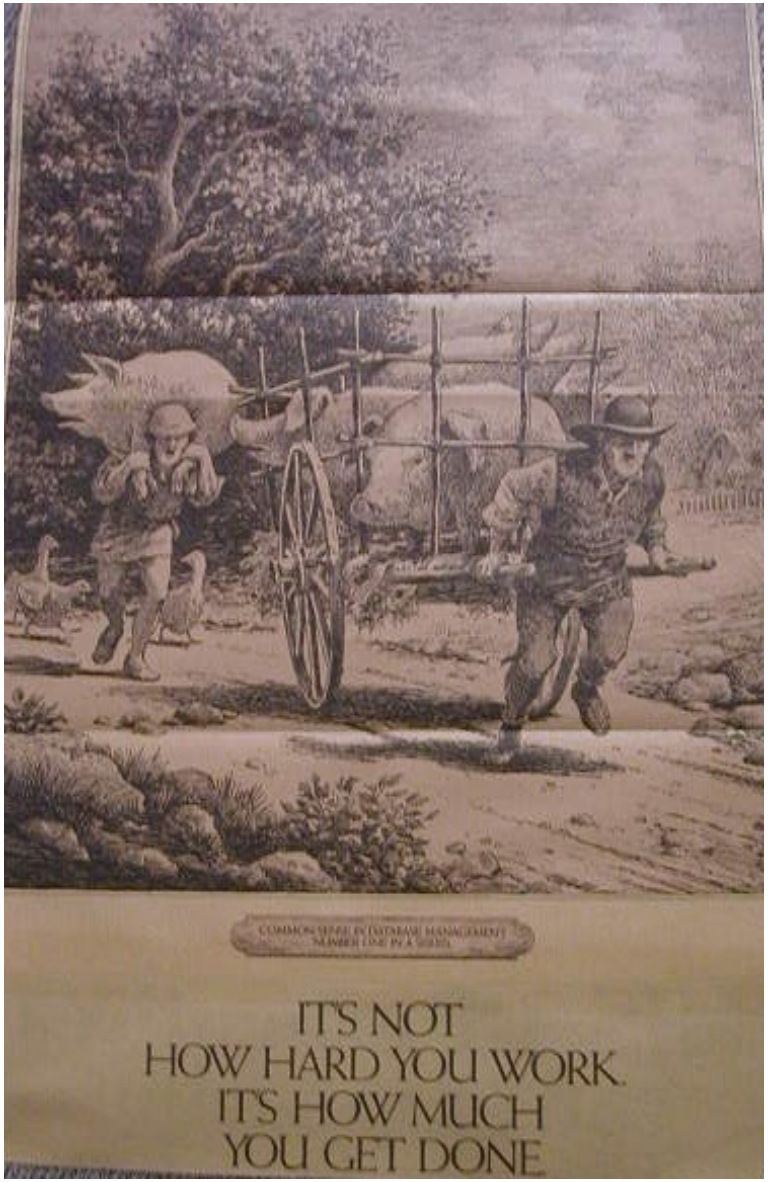
Data File Contents

Insert Additional Comments Here!

(Add Additional Description for Task Before Clicking Button)

Select your name from the Pull down list

Written in 2008-2010 by William F. Slater, III, NSSS Project Manager



(from a Revelation Database Advertisement
Published in ComputerWorld in 1985)

Work Philosophy

It's not how hard you work…
It's how much you get done.

PANDUIT™