

Case Studies

Results of IT Best Practices

E-commerce Case Study – Results of IT Best Practices

Options considered to provide Web site/e-Commerce capacity for 2000 users

Common Configuration

10 users per web server

- 200 physical servers
- 200 OS licenses
- 200 Tools licenses
- DC infrastructure
- DC operating costs
- Staffing
- Reliability issues

\$5,787,436

Server Virtualization

10 users per web server

- 20 physical servers
- 200 OS licenses
- 200 Tools licenses + Hypervisor costs
- 10% DC infrastructure
- 10% DC operating costs
- 100% Staffing (but higher complexity)
- Same or worse reliability issues

**\$3,777,365
(35% savings)**

Use of Best Practices

100 users per web server

- 20 physical servers
- 20 OS licenses
- 20 Tools licenses
- 10% DC infrastructure
- 10% DC operating costs
- 10% Staffing
- Improved reliability and performance

\$578,744 (90% savings)

2000 User E-commerce Cost Details

Cost Element	Unit/Initial Cost	3 Year Cost - Default	3 Year Cost - Virtualized	3 Year Cost - Use of Best Practices
HP DL 385 4GB 2 disks, no extended warranty	3000	3000	14486	3000
Supporting Servers (.1 NAS per server)	1500	1500	1500	1500
Supporting Hardware (KVM, LAN, UPS, Rack, A/C, cables, etc)	1679	1679	1679	1679
Backup Tapes	1125	3375	3375	3375
Electrical – 20A Circuit, Server Power and Server Cooling (.12/KWH)	100	3196	3196	3196
MS 2008 Std Server License, Monitor and backup license, and MS annual maintenance	955	1944	1944	1944
Estimated Hypervisor costs	0	0	1000+	0
IT Support costs (60K+30% benefits) for Setup, Migration, .4 hours daily support (20 servers per admin)	1450	13350	13350	13350
7% Tax	546	928	1902	928
Per Server Totals	\$10,495	\$28,972	\$42,432	\$28,972
Servers needed – physical/virtual		200/200	20/200	20/20
Estimated 3 year cost		\$5,787,436	\$3,777,365	\$578,744

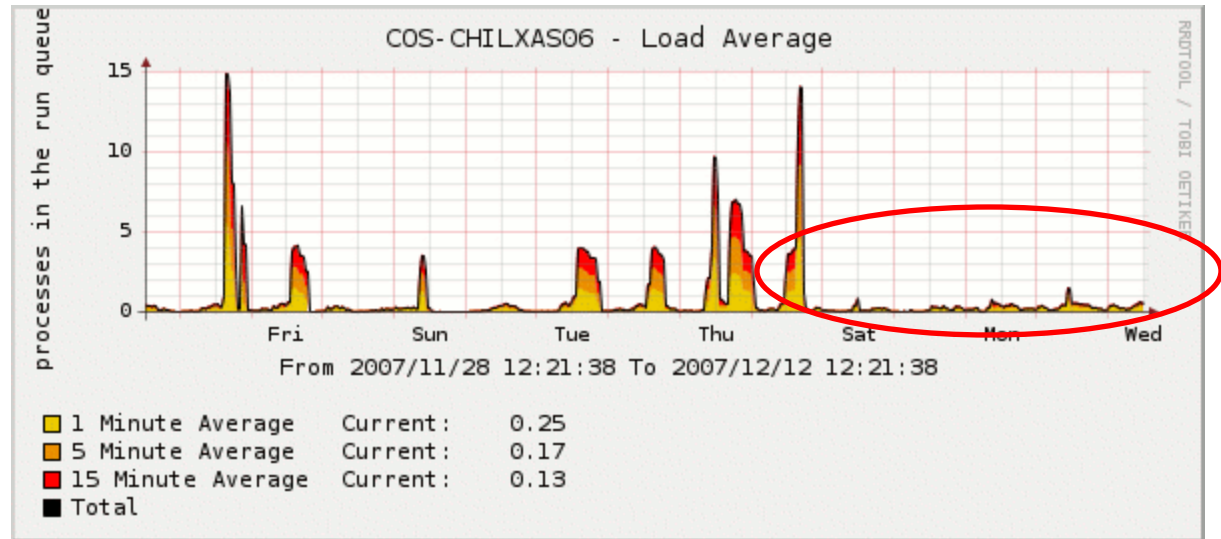
E-commerce Case Study – Results of IT Best Practices

Server Utilization Details

Apache web server capacity – more than 12X users on the same servers

Server	Active Users	
	Dec 11 2007 10:55:00 AM	Jan 10 2008 11:56:00 AM
as01	7	176
as06	7	199
as07	17	97
as08	13	187
as14	12	103
as15	12	127
as16	12	190
as02	7	78
as03	8	35
as13	3	52
	98	1245

Process wait queues – reduced to nearly zero, and server crashes eliminated



Implementation Costs = \$26,000

Tuned web servers = \$2000 (service)

Tuned database server = \$1500 (service)

Replaced database server = \$7500 (hardware)

Replaced server storage = \$15000 (hardware)

Mix of Internal IT staff and Consultants



Citrix, AS/400, Windows, Xiotech SAN, Netapp NAS, Workflow and Document Imaging, Life Insurance, 600 employees, 3 locations.

Key Activities

Local Area Network replaced

Wide Area Network replaced

Storage replaced

Servers replaced

Desktops moved to thin client/Citrix

3 Data Centers consolidated to 1



Insurance Case Study – Results of IT Best Practices

Metric	Before	After	Annual Value
Work Environment	<ul style="list-style-type: none"> • Frequent downtime • Poor application performance • Frustrated users, agents, and policyholders • Technology is limiting everything • Reactive/No fun 	<ul style="list-style-type: none"> • No limits on user productivity • High employee morale • Industry leading customer service • Technology is strategic • Proactive/fun 	<ul style="list-style-type: none"> • Organic, profitable growth • No changes to products or commissions • Forward looking
Sales	\$67M	\$512M	\$445M increase (660%)
Employees (FTE)	676	454	\$13.3M reduction (60K each FTE) (33%)
Operating Expenses	\$95M	\$76M	\$19M reduction (20%)
Employee Turnover	67% annually	12% annually	\$5M; reduction (55%); higher quality data and service
Backlog of transactions	6 months	none	Reduce regulatory risk; eliminate duplicate work; improved customer service
Avg Minutes/Trans	2.82	1.92	32% improvement
Marketing Staff FTE	104	25	75% reduction
IT budget	\$16M	\$13M	\$3M reduction (19%)
IT Staff FTE	49	35	29% reduction
% of IT time on new projects	0%	80%	Development of automated and self service functions



Insurance Case Study – Results of IT Best Practices

Insurance Industry Case Study
Productivity of Workflow Transactions

Document imaging and workflow application
response times before and after optimization

AWD Work type	Before IT Changes Dec 1 -15			After IT changes Feb 5 - 17			Differences in %	
	Transaction Count	Total Minutes	Average per Minute	Transaction Count	Total Minutes	Average per Minute	Transaction Count	Average per Minute
APPLJET	2440	11943.65	8.29	3538	12783.88	4.53	45	-45
APPL	1777	9586.51	6.41	1480	4676.06	3.67	-17	-43
SURR	1566	2194.78	2.05	2479	2089.81	1.24	58	-40
CHECKWK	894	691.6	0.92	7	1.04	0.13	-99	-86
INCAPPL	597	3353.75	6.39	732	2379.52	3.47	23	-46
LAB	564	315.29	0.66	488	173.69	0.31	-13	-53
AGTCTRT	410	549.35	2.36	384	277.35	1.27	-6	-46
REFUND	401	289.96	0.81	497	200.03	0.43	24	-47
APPLSMS	394	604.44	3.3	431	212.37	0.93	9	-72
PNRTM	329	361.49	1.54	42	21.14	0.59	-87	-62
NTO	269	219.46	0.86	197	119.49	0.55	-27	-36
ANNB	235	1615.62	9.95	188	507.03	2.17	-20	-78
AUTH	235	106.03	0.37	333	82.74	0.21	42	-43
NBREISSUE	160	702.15	5.72	219	236.9	0.92	37	-84
APPLARGE	142	1165.95	8.41	223	920.79	4.68	57	-44
OWNR	139	563.28	4.13	196	357.07	1.63	41	-61
AERRU	116	86.09	0.7	57	16.23	0.41	-51	-41
LSBLSPEC	105	249	2.78	160	219.36	0.90	52	-68
AERR	105	80.58	0.72	166	49.16	0.37	58	-49
PHONECOM	80	462.96	4.57	134	345.46	2.15	68	-53
NBPHONE	79	24.37	0.46	1199	240.64	0.26	1418	-43
FADDR	73	393.38	6.16	44	196.19	3.70	-40	-40
VDREISNB	71	277.35	8.7	52	99.28	1.50	-27	-83
JVNB	70	119.74	2.4	79	107.9	1.45	13	-40
APPLC	69	93.3	1.5	64	19.3	0.30	-7	-80
LOINSF	56	245.24	4.32	56	81.03	2.30		-47
LEGALB	47	13.64	0.33	3	0.28	0.09	-94	-73
MED LAM	47	18.69	0.37	1	0.2	0.20	-98	-46
IR	46	13.01	0.39	89	22.18	0.21	93	-46
REPLACE	44	19.23	0.59	47	10.97	0.19	7	-68
VOIDPA	42	41.23	1.58	82	93.41	1.00	95	-37
CL712	34	381.87	14.09	12	54.28	4.52	-65	-68
CKNOINFO	28	12.49	0.38	2	0.2	0.10	-93	-74
PEND1035	22	4.04	0.18	15	1.77	0.10	-32	-44
REINREQ	20	7.75	0.39	2	0.21	0.10	-90	-74
GOVPMT	19	21.94	1.27	37	18	0.52	96	-59
EFT ERROR	19	9.44	0.62	3	0.86	0.28	-84	-55
LEADCHG	16	20.07	1.26	11	8.36	0.58	-31	-54
STBOARD	14	467.34	46.97	13	37.01	2.83	-7	-94
CORNR	13	6.35	0.76	28	6.15	0.25	115	-67



Insurance Case Study – Results of IT Best Practices

Insurance Company FTE Analysis							
Policy Maintenance FTE	Starting	Year 1	Year 2	Year 3	Year 4		4 year FTE % Reduction
Group 1	Accounting	27.8	30.5	26.9	6.8	15	
	Customer	28.1	26.9	23.5	17.5	38	
	Customer	24	23	20.5	16	-	
	Claims	17.1	20.1	20.9	16	12	
	General	6	6	4	5	4	
	Compliance	-	-	0	26	15	
	Office	19	17	15.2	16.8	12	
	TOTALS	122	123.5	111	104.1	96	21%
Group 2	Accounting	21	19	18.5	19	15	
	Customer Service	32	30	27.3	28	19	
	Agency/Commission	17.3	13	5	6	4	
	Claims	4	4	4	6	7	
	General	2	2	1	0	2	
	Support	12	12	22	30	25	
	Office	24.8	22	23	20	19	
	TOTALS	113.1	102	100.8	109	91	20%
Group 3	Accounting	28	10	10	10.8	12.8	
	Policyowner	20	12	15	11	6	
	Critical	-	6	5	-	-	
	Commissions	13	5	4.5	4	5	
	General	3	3	1	-	-	
	Support	5	5	5	-	-	
	Office	9	6	4	5	4	
	TOTALS	78	47	44.5	30.8	27.8	64%
Total Policy Maintenance	313.1	272.5	256.3	243.9	214.8	31%	



Insurance Case Study – Results of IT Best Practices

Policy Issue FTE		Starting	Year 1	Year 2	Year 3	Year 4	4 year FTE % Reduction
Location 1	General	59	21	16	16	16	
	Preneed	0	0	17.8	9	6	
	Call Center	0	16.8	14	11	8	
	Mortgage	0	21	12	8	5	
	Licensing	0	12.3	11	10	9	
	International	0		9	7	-	
	Underwriting	13	13	11	8	11	
	TOTALS		72	84.1	90.8	69	55
Location 2	New	24	15	11	18	16	
	Agent	0	2	4	0	0	
	Call	0	0	0	7	6	
	Licensing	0	5	4.5	11	8	
	Underwriting	1	1	0.5	0	0	
	TOTALS		25	23	20	36	30
Total Issue		97	107.1	110.8	105	85	12%
Sales and Marketing FTE		Starting	Year 1	Year 2	Year 3	Year 4	4 year FTE % Reduction
	Sales 1	20	16	7	4	0	
	Sales 2	8	3	6	0	0	
	Marketing	11	7	19	26	25	
	Sales 3	1	4	0	0	0	
	Sales 4	64.5	0	1	0	0	
Total		104.5	30	33	30	25	76%



Insurance Case Study – Results of IT Best Practices

Corporate FTE	Starting	Year 1	Year 2	Year 3	Year 4	4 year FTE % Reduction
Executive 1	0	6	6	3	0	
Executive 2	9	10	10	9.5	7.5	17%
Mortgage	3	3	3	3	3	0%
IT	49	42	40	34	35	29%
Product	19	9	9	7	10	47%
Marketing	0	3	4	1	1	
Investments	10	8	9	8	8	20%
Corp Sec	6	9	9	9	10	-67%
HR	16.8	13	15	13.8	15	11%
Finance	46	44	44	39.8	36.8	20%
Other	3	3	3	2	3	0%
Total Corporate	161.8	150	152	130.1	129.3	20%
Total Company FTE	676.4	559.6	552.1	509	454.1	33%
Summary	Starting	Year 1	Year 2	Year 3	Year 4	4 year change
New Sales	67,000,000	155,000,000	283,000,000	512,000,000	454,000,000	578%
Sales/FTE	99,054				999,780	909%
Operating Expenses	95,000,000				76,000,000	20%



Order Processing Case Study – Results of IT Best Practices

Custom Products Order Management FTE Analysis - facilitation, data entry, typesetting, grouping, QA and supervisor functions

Baseline Productivity - all fax and electronic orders require data entry and typesetting

Date	Total Daily Orders	Fax orders	Link Orders	BAS orders	# of orders needing data entry - (all fax orders plus all BAS and Link Orders)	# of line items needing typesetting - (1.6 * number of orders)	# of work orders needing QA	D/E FTE needed (100 orders a day)	Typeset FTE needed (150 images per day)	QA FTE needed (150 number of Orders per FTE)	Facilitation	Supervisor	Total FTE for Order Mgmt	FTE / Order	Total Estimated Loaded Monthly Staffing Cost	Avg cost / order
July	1480	1302	89	89	1480	2368	1480	14.8	15.8	9.9	1.5	3	45.0	32.9	\$ 129,036	\$ 4.18

Systems running reliably and Integrator on line

Date	Total Daily Orders	Fax orders	Link Orders	BAS orders	# of orders needing data entry - (all fax orders plus all BAS and Link Orders)	# of line items needing typesetting - (1.6 * number of orders)	# of work orders needing QA	D/E FTE needed (100 orders a day)	Typeset FTE needed (150 images per day)	QA FTE needed (150 number of Orders per FTE)	Facilitation	Supervisor	Total FTE for Order Mgmt	FTE / Order	Total Estimated Loaded Monthly Staffing Cost	Avg cost / order	Annualized savings from Baseline (includes order volume changes if any)
March	1800	1260	360	180	1476	2880	1476	11.4	14.4	7.4	1.5	3	37.6	47.8	\$ 109,181	\$ 2.91	\$ 573,061
	21.6%	-3.3%	305.4%	102.7%										45.3%	change from base		

Link Stamp orders autotypeset and autogrouped

Date	Total Daily Orders	Fax orders	Link Orders	BAS orders	# of orders needing data entry - (all fax orders plus all BAS and Link Orders)	# of line items needing typesetting - (1.6 * number of orders)	# of work orders needing QA	D/E FTE needed (100 orders a day)	Typeset FTE needed (150 images per day)	QA FTE needed (150 number of Orders per FTE)	Facilitation	Supervisor	Total FTE for Order Mgmt	FTE / Order	Total Estimated Loaded Monthly Staffing Cost	Avg cost / order	Annualized savings from Baseline (includes order volume changes if any)
October	1892	851	757	284	1211	1937	1211	9.3	9.7	6.1	1	2	28.1	67.4	\$ 80,835	\$ 2.05	\$ 1,009,467
	27.8%	-34.6%	752.3%	219.6%										104.8%	change from base		



Quality Analysis Impact from Auto Typesetting - Chicago only

Month	Error Rate	
March	2.06%	
April	2.35%	
May	2.23%	
June	2.69%	2.33% Average error rate before typeset automation
July	1.81%	Autotypeset implemented mid month
August	1.28%	
Sept	1.40%	1.34% Average error rate after typeset automation

42% Reduction in Errors

390 Estimated # of order remakes/month eliminated

23 Estimated Cost/order for a remake (\$13.00 + 10.00 shipping)

\$ 8,971 Estimated monthly savings for Chicago only

\$ 107,656 Estimated Annual Company wide savings from improved quality

Order Processing Case Study – Results of IT Best Practices

Major Customer Order Cycle Time Report								
January								
Order Method	% of orders	total orders / orders shipped in 2 days	Same Day	Day 1	Day 2	Day 3	Day 4	5+ days
A	3%	968	35	161	343	228	77	123
in 2 days		56%	4%	17%	35%	24%	8%	13%
F	29%	8232	186	1415	2298	1344	967	2020
in 2 days		47%	2%	17%	28%	16%	12%	25%
N	67%	18919	995	5781	5961	3725	1431	1025
in 2 days		67%	5%	31%	32%	20%	8%	5%
Total Orders	100%	28119	1216	7357	8602	5297	2475	3168
in 2 days		61%	4%	26%	31%	19%	9%	11%

September								
Order Method	% of orders	total orders / orders shipped in 2 days	Same Day	Day 1	Day 2	Day 3	Day 4	5+ days
A	3%	610	75	249	156	32	24	74
in 2 days		79%	12%	41%	26%	5%	4%	12%
F	22%	4949	91	392	841	1550	952	1123
in 2 days		27%	2%	8%	17%	31%	19%	23%
N	75%	16704	1888	8269	4178	1129	565	675
in 2 days		86%	11%	50%	25%	7%	3%	4%
Total Orders	100%	22263	2054	8910	5175	2711	1541	1872
in 2 days		72%	9%	40%	23%	12%	7%	8%

B2B Case Study - Results of IT Best Practices

Server downtime eliminated

Web response times reduced 40% and now consistent; site availability dramatically improved

Server Downtime

2007		2008	
Date	Time	Date	Time
7/24	2:01 PM	1/3	9:45 AM
7/24	3:01 PM	1/3	11:28 AM
7/25	8:01 AM	1/3	12:46 PM
7/25	8:51 AM	1/4	6:58 AM
7/26	9:55 AM	1/22	7:18 AM
7/26	10:37 AM	2/7	6:46 AM
8/1	7:10 AM	2/26	3:43 PM
8/2	7:26 AM	3/6	7:43 AM
8/3	4:30 PM	3/13	9:33 AM
8/9	8:55 AM	3/20	7:20 AM
8/13	7:19 AM	3/31	10:15 AM
8/13	8:43 AM	4/1	10:07 AM
8/20	2:11 PM	4/3	7:24 AM
8/21	8:30 AM	4/16	7:24 AM
8/27	10:36 AM	4/17	7:12 AM
8/29	8:26 AM	4/17	3:32 PM
8/30	9:20 AM	4/18	6:49 AM
8/30	11:37 AM	4/18	12:58 PM
8/30	4:17 PM		
9/12	6:51 AM		
9/14	6:48 AM		
9/17	6:37 AM		
9/25	8:01 AM		
10/4	7:27 AM		
10/10	7:33 AM		
10/23	7:24 AM		
10/29	8:01 AM		
10/29	9:55 AM		
11/16	7:28 AM		
11/27	7:32 AM		
11/27	2:13 PM		
12/4	7:13 AM		
12/11	7:35 AM		
12/14	7:06 AM		
12/21	6:27 AM		



SaaS Marketing Analytics Case Study

Results of IT Best Practices

Marketing Analytics SaaS provider

HP Unix, Oracle Database, IBM Mainframe, EMC SAN, Marketing Automation ASP, 120 employees, 1 location.

Eliminated crashes, increased system performance by 300%; avoided \$1.5M in capital costs; enabled new daily services to match competition.

	Metric	Before	After
Infrastructure Tune-up using Best Practices	Product Offering	Monthly analysis	Weekly and daily
	Cycle time for 1TB	72 hours with multiple restarts	8 hours – no restarts
	SAN data rates	33MB/sec	100MB/sec
	% of developer time on job support	50%	5%

Total capital costs = \$1000
Performed by Internal IT staff

A financial services firm invests \$150K in Solid State Disk (SSD) from Texas Memory Systems.

- The internal IT staff configures and installs the device using their standard methods, which include using many default parameters.
- Testing demonstrates 361MB/sec..
- Using the configuration recommendations from the TCS Assessment, bandwidth increased to 760MB/sec.
- **The use of best practices more than doubled the value of the investment, and enabled new real-time, data intensive products to be introduced to their clients.**

Case Studies – Results of IT Best Practices

Windows, IIS, SQL, Biztalk, Windows NAS and EMC SAN, B2B, Custom Products Manufacturing, 1400 employees, 10 locations.

- Eliminated downtime, Increased scalability from 100 users to 3000+, sales grew to \$6.25M, saved business. Repeated tuning to 3 similar environments with same results. Saved \$1.5M+ new investment and hosting costs.

Windows, IIS, SQL, Windows NAS and EMC SAN, B2B, Custom Products Manufacturing, 1400 employees, 10 locations.

- Eliminated downtime after 54 outages in 7 months, increased application performance by 15X, saved a \$5M revenue account.

Web Open Source (Java, Apache, MySQL, JBOSS), B2B, Custom Products Manufacturing, 400 employees, 5 locations.

- Eliminated downtime, Increased scalability from 100 users to 2500+, increased online orders from 12% to 76%.
- Eliminated downtime, Increased employee productivity by 40%, reduced employee turnover from 67% to 12%, reduced total company costs by 20%, saved \$20M annually, sales grew 660%.

Case Studies – Results of IT Best Practices

Unisys Mainframes, EMC SAN, Windows, Citrix, Retail Banking, 3000 employees, 220 locations.

- Eliminated downtime, increased IT productivity by 300%, saving \$5M annually, company grew 300% in 18 months

AS/400, Windows, IIS, EMC SAN, Biztalk, Order Processing, Custom Products Manufacturing, 1400 employees, 10 locations.

- Resolved capacity bottlenecks that delayed orders 24 hours and caused manual intervention and missed service levels.

Windows Terminal Server, AS/400, FoxPro database, Order Processing, Custom Products Manufacturing, 400 employees, 5 locations.

- Eliminated downtime, increased database performance 900%, increased employee productivity by 50%, saved \$1.5M annually.

The Myth of the \$3500 Server

Item	Initial Cost	3 Year Cost
HP DL 360 4GB 2 disks, no extended warranty	3500	3500
Supporting Servers (.1 NAS)	1500	1500
Supporting Hardware (KVM, LAN, UPS, Rack, A/C, cables, etc)	1679	1679
Backup Tapes	1125	3375
Electrical – 20A Circuit, Server Power and Server Cooling (.12/KWH)	100	3196
MS Software Std Server License, Monitor and backup license, and MS annual maintenance	955	1944
IT Support costs (60K+30% benefits) for Setup, Migration, .4 hours daily support (20 servers per admin)	1450	13350
7% Tax	546	928
Totals	\$10,855	\$28,544

Benefits of Higher User Productivity

500 users of the application
\$14 hour average hourly rate
30% benefit ratio
\$18.20 fully loaded hourly rate
**\$18,928,000 Annual costs of
workforce**

Increase in Productivity	Annual Benefit
1%	\$189,280
5%	\$946,400
10%	\$1,892,800

Reduced Recruiting and Training costs
Improved Morale, Improved Service
Management Focus on Key Activities

Costs of Employee Turnover

500 users of the application
 \$14 hour average hourly rate
 30% benefit ratio
 \$18.20 fully loaded hourly rate
 160 hours (4 weeks) to train + ¼ of a supervisor at \$22.20 fully loaded hourly rate
 3 hours IT setup per hire
 \$1000 cost for ads, fees, interviewing, HR, etc. per hire
\$18,928.000 Annual costs of workforce

Turnover Rate	Direct Training Costs	Supervisor Costs	IT Setup Costs	Other Hiring Costs	Total Turnover Costs
1%	\$14,560	\$4,440	\$560	\$5,000	\$24,560
5%	\$72,800	\$22,200	\$2,810	\$25,000	\$122,810
10%	\$145,600	\$44,400	\$5,630	\$50,000	\$245,630
20%	\$291,200	\$88,800	\$11,250	\$100,000	\$491,250
50%	\$728,000	\$222,000	\$28,130	\$250,000	\$1,228,130

+ Product Quality, Service, Cycle Times, and Leadership Costs...

Increased Utilization of Current IT Assets

Current IT Assets	Increase in Utilization	Benefit
\$50,000,000	10%	\$5,000,000
\$50,000,000	20%	\$10,000,000
\$50,000,000	50%	\$25,000,000

Use of Best Practices can often increase utilization by 100% or more

Healthcare Client Findings/Improvement Opportunities

- ✓ **Poor physical security of data center – card entry system not working for 6 months; open doors**
- ✓ **Data center location is at risk from flooding and plumbing issues – DC flooded during the audit**
- ✓ **75+ TB of mission critical data not backed up in 9 months – identified specific capacity issues in environment preventing required backups**
- ✓ **SAN and DAS storage has not been tuned – opportunity to improve throughput by 10X**
- ✓ **Desktops are under-configured and have not been patched since installation, causing reliability and performance issues and high support costs**
- ✓ **Server farms are not identical, causing reliability and troubleshooting issues**
- ✓ **No current disaster recovery/business continuity plan**
- ✓ **Poor WAN reliability; no backup network links to remote sites; no network disaster recovery plan**
- ✓ **Highly saturated WAN circuits – suggested specific configuration actions that can significantly reduce bandwidth use with no business impact**
- ✓ **Network security risks due to VPN software and user management issues**
- ✓ **No use of network penetration testing; no server hardening; no inspection of security logs**
- ✓ **Poor documentation across all IT subject areas**
- ✓ **No monitoring or historical data collection tools for performance and capacity management**
- ✓ **No inventory of IT assets**
- ✓ **Poor management of software licensing – tracking of purchases, what is installed, regulations, etc.**
- ✓ **No monitoring of key business applications**
- ✓ **No test environments are in place**
- ✓ **Understaffed in most areas; need to increase staff training across all IT subject areas**

...over 450 high impact topics were identified

Thank You!

Questions?

More Information:

WWW.TheConsultantsSource.com

Info@TheConsultantsSource.com

312-835-4742