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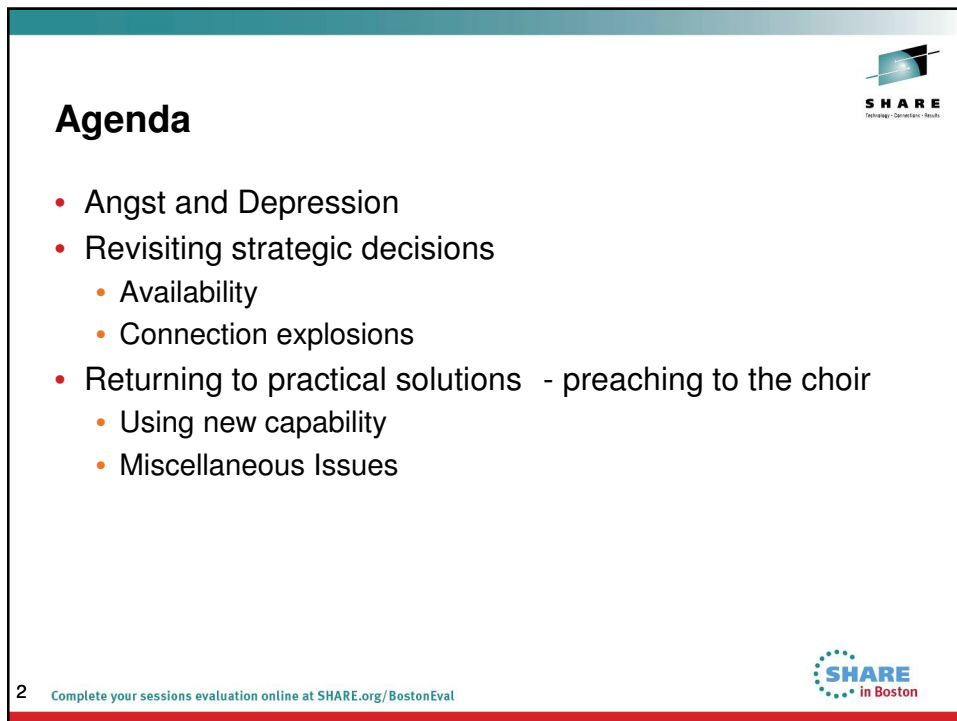
SHARE
Technology · Connections · Results

CICS and WMQ

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Agenda

- Angst and Depression
- Revisiting strategic decisions
 - Availability
 - Connection explosions
- Returning to practical solutions - preaching to the choir
 - Using new capability
 - Miscellaneous Issues

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Angst and Depression



- Since the 1980s the mainframe has been “dead or dying”
- Many businesses are choosing to use ‘commodity hardware’ and off the shelf software to solve their problems
- This is the story of many of those situations,
 - And this is why I have hope

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Strategy



- About 5 years ago a large production oriented customer made a decision, based on information provided by their IT strategy consultants:
 - “z/OS is no longer strategic for our company; we have to modernize”
 - Commodity hardware and software are the rule
 - Moving one key application from z/OS to xLinux as the test case
 - The timeline was 18 months, the last 3 months running in parallel
 - The initial estimate was 1.2M for the application conversion
 - The hardware costs were estimated at 175 -250 K

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Reality – Measured results



- When finally complete:
 - The project took 3.5+ years
 - The project cost over 4.5M in services fees over the 3.5 years.
 - Custom tailoring of the software was more extensive than planned
 - They did not factor in the employee costs, which would have raised the total considerably.
 - The hardware expenditures were over 500K
 - They do not have a fully discrete development, QA and production environments.

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Reality – Unexpected results



- The application availability has gone from 99.99% to 97%
 - Or from 1 minute per week to 5 hours per week
- They are experiencing capacity and volume problems
 - Provisioning servers takes more time and costs more than anticipated
 - Many servers are grossly underutilized
 - Required for peak volume times
- Applying updates and maintenance to many more images is more time consuming than planned
 - Some unplanned outages have been attributed to available fixes

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Availability 'by the nines' chart

Availability %	Downtime per year	Downtime per month*	Downtime per week
90% ("one nine")	36.5 days	72 hours	16.8 hours
95%	18.25 days	36 hours	8.4 hours
97%	10.96 days	21.6 hours	5.04 hours
98%	7.30 days	14.4 hours	3.36 hours
99% ("two nines")	3.65 days	7.20 hours	1.68 hours
99.5%	1.83 days	3.60 hours	50.4 minutes
99.8%	17.52 hours	86.23 minutes	20.16 minutes
99.9% ("three nines")	8.76 hours	43.8 minutes	10.1 minutes
99.95%	4.38 hours	21.56 minutes	5.04 minutes
99.99% ("four nines")	52.56 minutes	4.32 minutes	1.01 minutes
99.999% ("five nines")	5.26 minutes	25.9 seconds	6.05 seconds
99.9999% ("six nines")	31.5 seconds	2.59 seconds	0.605 seconds
99.99999% ("seven nines")	3.15 seconds	0.259 seconds	0.0605 seconds

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Results

- The suggestion to convert the next key application to distributed was met with
 - 'We have decided the mainframe is strategic after all'
 - So why have they made this decision?
 - They kept an honest set of books on the project
 - The connectivity explosion is catching up with them
 - *The availability issue is a significant factor*

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Results - notes



- By keeping an 'honest set of books':
 - The project kept track of every piece of equipment purchased and used
 - The oft-used technique of purchasing one server at a time to keep costs under the radar was not allowed
 - They kept track of all consultancy and contractor fees
 - 'Split time' was accounted for correctly
 - Continued costs of running the 'old fashioned' systems was included
 - Extended support contracts had been put in place for a couple of components

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In recent 'Public Cloud' news



The screenshot shows the top of The Register website. The header is red with the white logo 'The Register®'. Below the header is a navigation bar with links: Data Center, Cloud, Software, Networks, Security, Policy, Business, Jobs, Hardware, Science, and Bootnotes. The main content area has a 'CLOUD' category label. The headline of the article is 'Database failure ate my data' – Salesforce customer. Below the headline is a sub-headline in red: 'We're working on it, says cloudy services pusher'. The byline reads: 'By Gavin Clarke, 15th August 2013'.

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Recent public cloud news



- This article is from the Register, published on August 15, 2013. It can be found: http://www.theregister.co.uk/2013/08/15/salesforce_data_outage/
- It has been reported by some customers (though not verified by Salesforce) that in some cases an hour of data has been lost and is completely unrecoverable.

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Hope springs eternal

- With better tools to measure TCO
- With more I/T shops recognizing the value in what they have
- There is an emerging emphasis on practical solutions versus what's fashionable



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A major driver - Connection Explosions

- New devices bring new opportunity
 - Status updates
 - Not talking about social media status
 - Smart devices
 - Device generated payments
 - Smart Meters
 - Location tracking



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Connection Explosions

- A quote heard on NPR:
 - “People have had cell phones for a while. They used to keep them in their pockets, now they have them out staring at them all the time.”
- Coffee shop tale –
 - Customer was trying to pay with a smart phone app, but could not get the money transferred because a server was not available.
 - Line was extending out the door, people were walking away.
 - Lost business, lost good will, rest of the line was annoyed



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Solutions to the connectivity explosion



- The connectivity problem is two fold:
 - Managing the millions of potential concurrent connections from new devices with emerging standards
 - The front end issue
 - Processing the requests
 - Giving people the ability to ask about their account 24/7 leads to demand during traditional outage windows
 - "I do my banking at night"
 - "I don't just have an emergency between 8-5, M-F"
 - "The farmbot does not stop working because it's night"
 - The back end issue

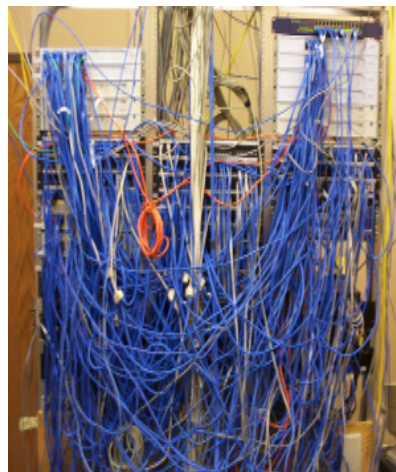
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Solution to the connectivity explosion



- Let's add more servers
 - Wiring
 - Governance
 - Heat
 - Power
 - Real estate
 - DR



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Solution to the connectivity explosion



- Truthfully the explosion of connection types and standards if often better met with distributed solutions than by using z/OS
 - Or with appliances - see MessageSight!
- However
 - There are tools in the product families that can make this problem much more manageable
 - These tools and new features tie more directly back to the CICS/WMQ for z/OS sweet spots is on the back-end – being able to process all the requests reliably

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So now that we are strategic again



- How do we cope?
 - Taking advantage of the robust nature of the hardware and software
 - Subsystems and hardware designed around rolling maintenance
 - Subsystems are leading trends ... or at least keeping up
 - *While keeping the critical features we know and love*
 - Use the Sysplex and the 'plex aware features of the subsystems
 - CICS
 - CPSPM
 - RLS
 - Other Shared resources
 - MQ - Queue Sharing
 - DB2 Data Sharing

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So we are strategic again



- What can we do to modernize our applications that no one has touched in years?
 - Modernization of CICS applications has been going on for decades
 - Quite often just looking at the code reveals a wealth of opportunity and education
 - DPL enabled – good to go for almost any connection
 - Invoked via WMQ, WebServices, etc.
 - CICS Interdependency Analyzer can help



So we are strategic again....

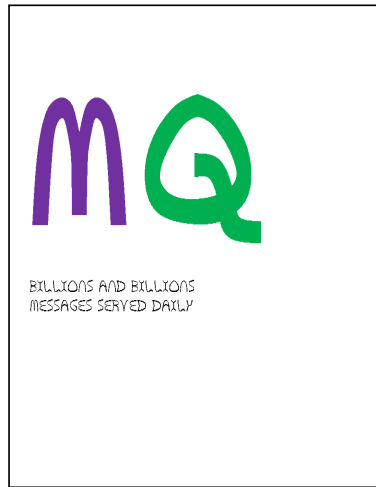


- Performance monitoring will become more critical
- Response time will be meaningful to more people



Coping with the volume

- Billions of transactions a day?
 - No problem
- Billions of messages a day?
 - No problem
- Billions of database updates a day?
 - No problem



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Miscellaneous tales of woe

- In the next few slides there are situations that can be avoided
 - The myth of the free client
 - Unexplained MIPS increases
 - Other horror tales to be shared around the campfire

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The myth of the free client

- Project plan was to eliminate the CICS MIPS by moving the application off platform, while giving the same availability
 - Using DB2 connect and WMQ clients
 - MIPS reduction anticipated was 25%
- Result
 - MIPS increased by 40% initially
 - Brought down to an increase of 20% thru significant recoding

Unexplained MIPS increases

- Stealth applications –
 - Applications accessing and using CICS, DB2, and WMQ on z/OS without being budgeted
 - “But the application code is mostly on commodity servers, so it does not cost a thing”



Unexplained MIPS increases



- In this example, a new application was brought onboard, using services already provided by CICS, MQ and DB2
- It was done without any interaction with the system admin staff
- Volume started out as low, and grew....until

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Misc Horror Story



- Let's outsource
 - By | [Paul Kunert](#) 7th February 2013 17:24
 - [Stricken 2e2 threatens data centres: Your money or your lights](#)
 - **£40k from biggest fish, £4k from minnows, to keep servers running**
 - The collapse of UK IT contractor 2e2 descended into farce tonight as its largest data centre customers were told to each pay £40,000 just to keep the lights on.
 - Clients of debt-crippled 2e2 were told to cough up the cash to keep systems running until they transition to another provider, sources close to the situation have told *The Channel*.



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