CICS and WMQ

Lyn Elkins – elkinsc@us.ibm.com

IBM Advanced Technical Skills

SHARE
in San Francisco
2013

Agenda

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

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

Strategy

- About 4.5 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

Complete your sessions evaluation online at SHARE.org/SFEval

SHARE
in San Francisco
2013

4

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.

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
- Applying updates and maintenance to many more images is more time consuming than planned

Complete your sessions evaluation online at SHARE.org/SFEval

SHARE
in San Francisco
2013

6

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

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*

SHARE
in San Francisco
2013

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

SHARE
in San Francisco
2013

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 verses what's fashionable

SHARE
in San Francisco
2013

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…..

Complete your sessions evaluation online at SHARE.org/SFEval
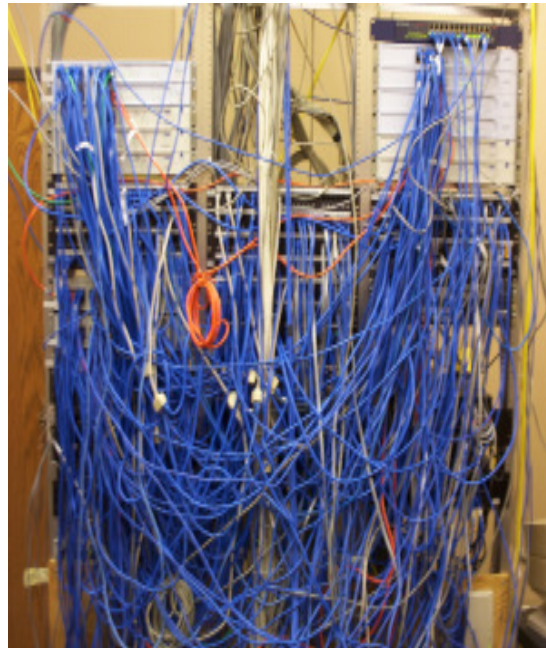
Connection Explosions

- 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

Complete your sessions evaluation online at SHARE.org/SFEval

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"
    - The back end issue

Complete your sessions evaluation online at SHARE.org/SFEval

SHARE
in San Francisco
2013

Solution to the connectivity explosion

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

SHARE
in San Francisco
2013

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
- 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 request reliably

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
      - *CPSM*
      - *RLS*
      - *Other Shared resources*
    - MQ - Queue Sharing
    - DB2 Data Sharing

16

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

Complete your sessions evaluation online at SHARE.org/SFEval

SHARE
in San Francisco
2013

So we are strategic again….

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

Complete your sessions evaluation online at SHARE.org/SFEval

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

SHARE
in San Francisco
2013
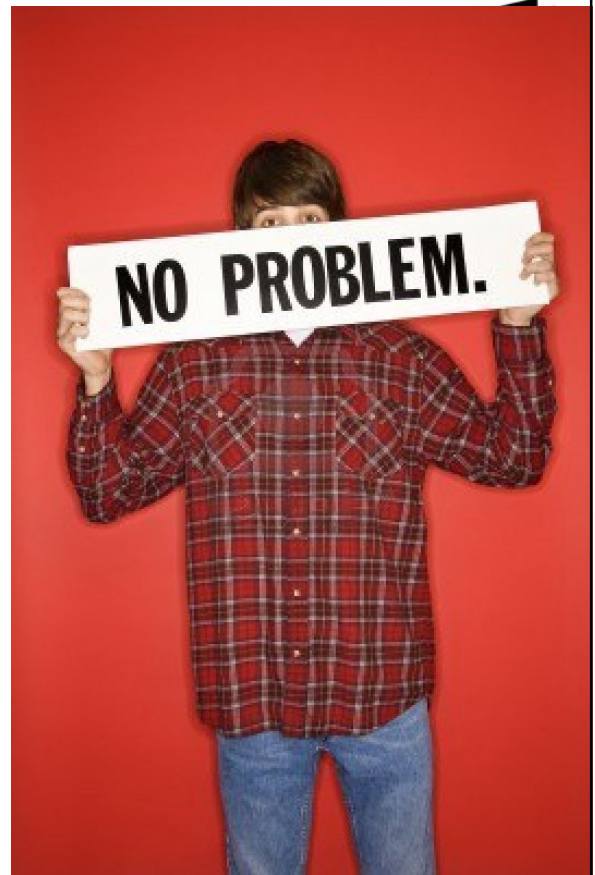
Miscellaneous tales of woe

- 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 campfile

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 increase by 40% initially
  - Brought down to an increase of 20% thru significant recoding

Complete your sessions evaluation online at SHARE.org/SFEval

SHARE
in San Francisco
2013

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

Complete your sessions evaluation online at SHARE.org/SFEval

23

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*.

Complete your sessions evaluation online at SHARE.org/SFEval

25