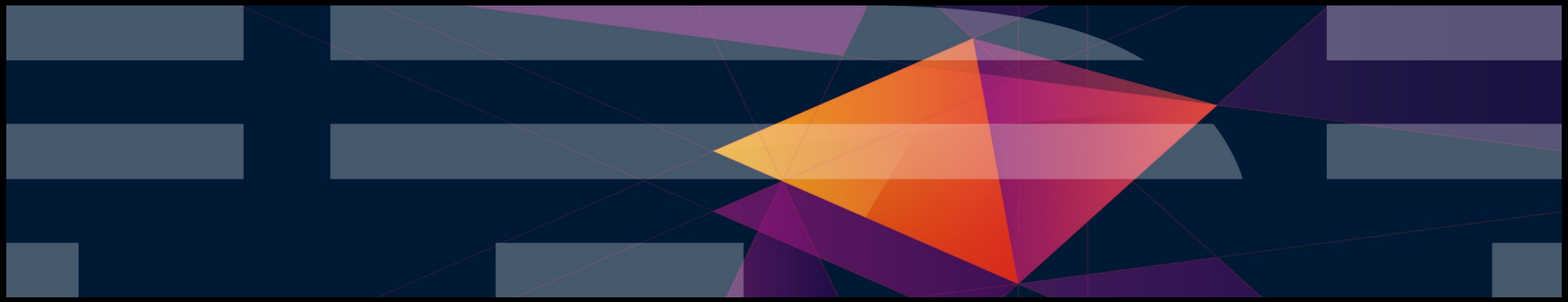
Don’t Fear the Crisis

Living through a Critical Situation

June 9, 2017 Version 2.3

Bill Bitner
z/VM Dev Lab Client Focus & Care
bitnerb@us.ibm.com



Trademarks

The following are trademarks of the International Business Machines Corporation in the United States and/or other countries.

BladeCenter*	FICON*	OMEGAMON*	RACF*	System z9*	zSecure
DB2*	GDPS*	Performance Toolkit for VM	Storwize*	System z10*	z/VM*
DS6000*	HiperSockets	Power*	System Storage*	Tivoli*	z Systems*
DS8000*	HyperSwap	PowerVM	System x*	zEnterprise*	
ECKD	IBM z13*	PR/SM	System z*	z/OS*	

* Registered trademarks of IBM Corporation

The following are trademarks or registered trademarks of other companies.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.
Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.
Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.
ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.
Java and all Java based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.
Linear Tape-Open, LTO, the LTO Logo, Ultrium, and the Ultrium logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and
Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
OpenStack is a trademark of OpenStack LLC. The OpenStack trademark policy is available on the OpenStack website.
TEALEAF is a registered trademark of Tealeaf, an IBM Company.
Windows Server and the Windows logo are trademarks of the Microsoft group of countries.
Worklight is a trademark or registered trademark of Worklight, an IBM Company.
UNIX is a registered trademark of The Open Group in the United States and other countries.

* Other product and service names might be trademarks of IBM or other companies.

Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.

This information provides only general descriptions of the types and portions of workloads that are eligible for execution on Specialty Engines (e.g., zIIPs, zAAPs, and IFLs) ("SEs"). IBM authorizes customers to use IBM SE only to execute the processing of Eligible Workloads of specific Programs expressly authorized by IBM as specified in the “Authorized Use Table for IBM Machines” provided at www.ibm.com/systems/support/machine_warranties/machine_code/aut.html (“AUT”). No other workload processing is authorized for execution on an SE. IBM offers SE at a lower price than General Processors/Central Processors because customers are authorized to use SEs only to process certain types and/or amounts of workloads as specified by IBM in the AUT.

Notice Regarding Specialty Engines (e.g., zIIPs, zAAPs and IFLs):

Any information contained in this document regarding Specialty Engines ("SEs") and SE eligible workloads provides only general descriptions of the types and portions of workloads that are eligible for execution on Specialty Engines (e.g., zIIPs, zAAPs, and IFLs). IBM authorizes customers to use IBM SE only to execute the processing of Eligible Workloads of specific Programs expressly authorized by IBM as specified in the “Authorized Use Table for IBM Machines” provided at www.ibm.com/systems/support/machine_warranties/machine_code/aut.html (“AUT”).

No other workload processing is authorized for execution on an SE.

IBM offers SEs at a lower price than General Processors/Central Processors because customers are authorized to use SEs only to process certain types and/or amounts of workloads as specified by IBM in the AUT.

Abstract

My worst fear used to be a critical situation (crit sit), but now it's a middle seat on a 12 hour flight. I still have a healthy respect for crit sits, but I don't fear them. Sort of like 7th grade, I've been through it, so I know I can do it. In IBM “crit sit” has a specific meaning. This presentation applies to a general ‘IT crisis’, not just an IBM crit sit. The speaker will review various hints and tips about how to live through a crisis or maybe even avoid it. While many of the stories will be z/VM related and there will be some specifics for collecting data in a z/VM environment, a lot of the information and discussion will apply to IT crit sits in general.

Agenda

- Brief Look at IBM formal Critical Situation
- Avoiding a critical situation
- Impact of critical situations
- Dealing with a critical situation
  - Problem Definition
  - Communication
  - Analysis
  - Other hints and Tips

IBM Complaint Process

- Complaint Management Process (CMP)
  - Not a bypass to the normal service process
  - Invoked when the NORMAL business processes and escalations have been applied and failed to resolve the issue or have not progressed quickly enough.

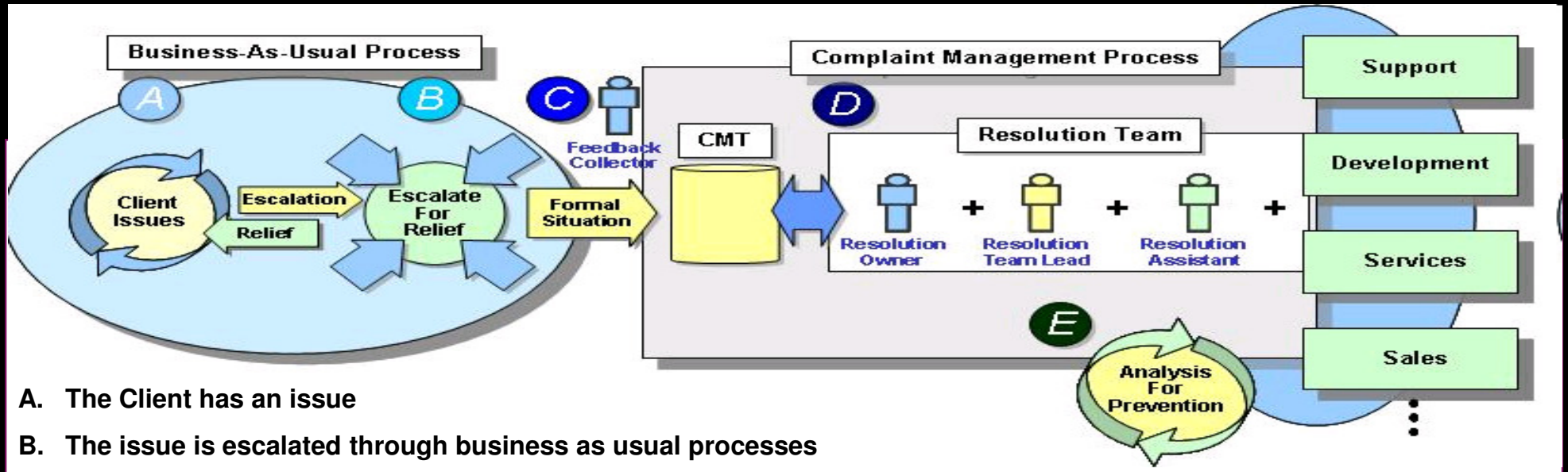
- Registered complaints, based on business impact and/or source of the problem
  - Proactive: opportunity exists to resolve an issue before the client formally complains
  - Complaint: on behalf of a client or business partner who is dissatisfied.

- A complaint can be flagged as “Critical” (CritSit) and receive IBM executive focus when either of the following is true:
  - The issue has caused the client’s business operations to be seriously impacted.
  - IBM has determined that failure to resolve the issue will cause irreparable damage to the relationship between IBM and the client.

CMP Terms

- Complaint Management Tool (CMT) – how complaint is registered and tracked
- Resolution Owner (RO) - assigned and acknowledges complaint to client; ensures communication with client continues until closure; builds team according to complexity.
- Resolution Team Leads (RTLs) – owns the technical resolution and manages the team. Part of the client satisfaction team.
- Resolution Assistant (RAs) – assistants from various components as needed

IBM Process



A. The Client has an issue

B. The issue is escalated through business as usual processes

C. Any IBMer can submit the issue through the Complaint Management Tool to formally request a complaint be opened on behalf of the client

D. The Resolution Owner is assigned to take ownership of the complaint and engages others as needed to help in resolution

E. The feedback from the client and from the process itself is analyzed to provide improvement in the business and the process

Avoiding Crisis Situations

- Build your Proof of Concept as if you will live with it forever
- Do not skimp on System Review Process
- Change management system
- Test like your job depends on it - Performance and Quality Engineering
- Have a strategy for keeping software and hardware current
- Find friends – local user groups, mailing lists, conferences
- Take zero risk and never try anything new or important. Go back to bed and don’t come out.

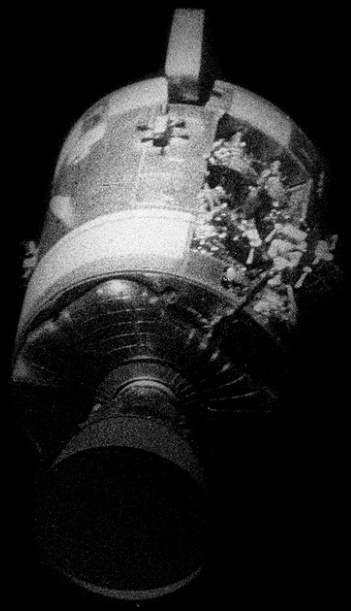
The Impact of Critical Situations

"With all due respect, sir, I believe this is going to be our finest hour."

– movie Gene Kranz, NASA Flight Director, in reference to Apollo 13

Problem Definition

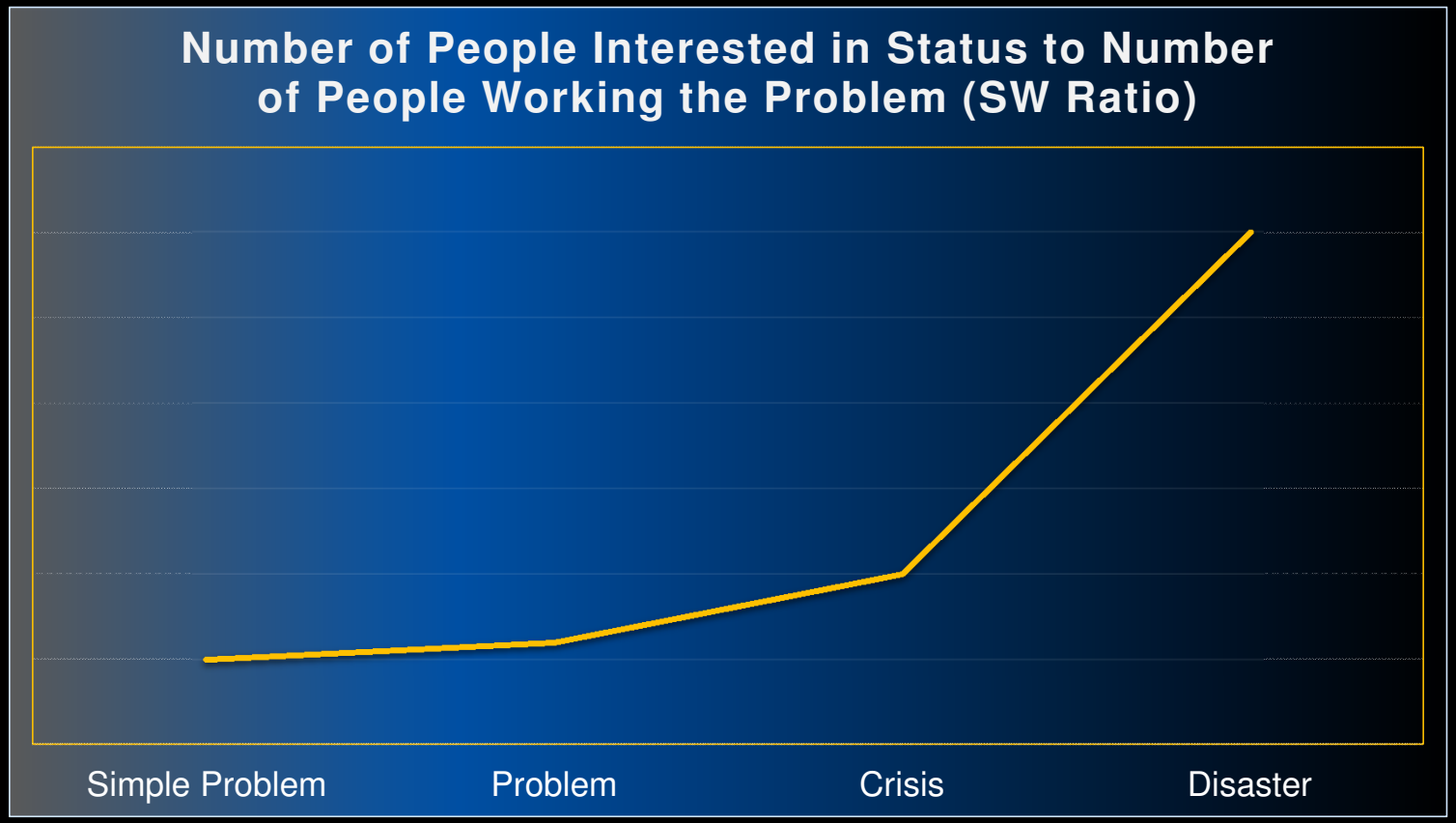
"Houston, we've had a problem." – Jim Lovell



Problem Definition

- Avoid the urge to rush into a solution prior to understanding the problem
- What is wrong?
- What is the business impact?
  - Client's impact & IBM's impact
- Is there more than one problem?
- When did it go wrong?
  - Did it go wrong all at once, or gradually?
- Is it an "expectations" mismatch?
  - How were the expectations set?
- What constitutes correct?
  - Criteria for resolution or "Go home" criteria
- Prioritization / Triage
  - Getting to root cause vs. stabilizing the system
- Getting agreement from all parties on the problem

Stages of Communication



What is the Objective of Communication?

- To gather information
- To share information
- Reduce confusion
- Make progress on a joint effort
- Ensure agreement
- Let people know you're actively working the problem

Communication Challenges

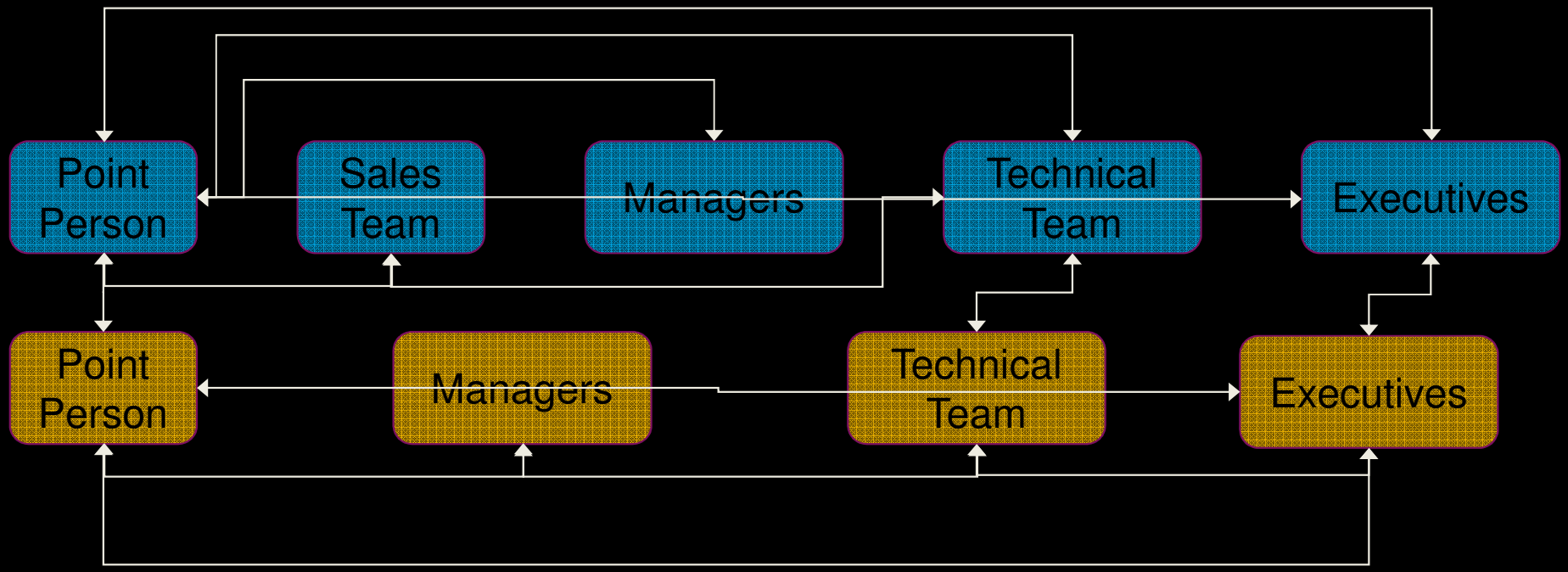
- No one knows who to include
  - or who was missing from list
- Assumptions made about what people already know
- Too much information all at once
- Not sure which communication vehicle(s) to use
- Fear of saying the wrong thing

Ways to Improve Communication

- Identify Focal Points
  - Customer & IBM
- Who's who – document (see situation for dummies)
- Distribution Lists
  - IBM vs. Client vs. ISV vs. Everyone
  - Technical vs. Management vs. Executive
  - This will need to be dynamic
- Email, instant messaging, data repositories, slack, IBM Box
- Terminology
  - IBM & Client – acronyms, naming conventions

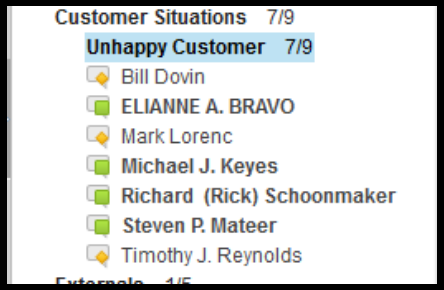
Communication Combinations

IBM Customer

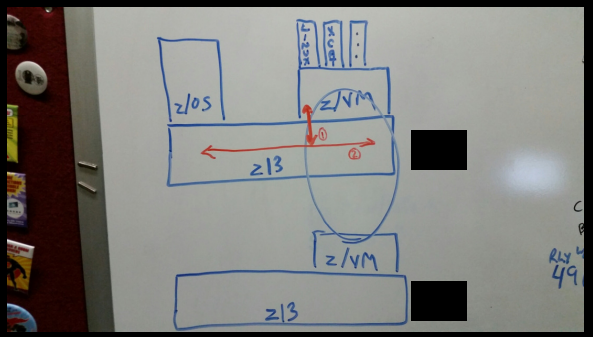


Tools/Techniques to Improve Communication

- Email
  - Use meaningful “Subject”
    - Include customer name or PMR or some distinguishing handling as some people may have more than one problem at a time
    - “Respond by …”
    - “**IBMers Only**”
    - “Test Results” vs. “March 5 z/VM Test Results – Adjust Share Settings”



- A Shared Blog
  - Multiple authors, running discussion
  - IBM Box, Lotus Domino Teamrooms, Slack, etc.
- Group Chats
- Whiteboard Pictures

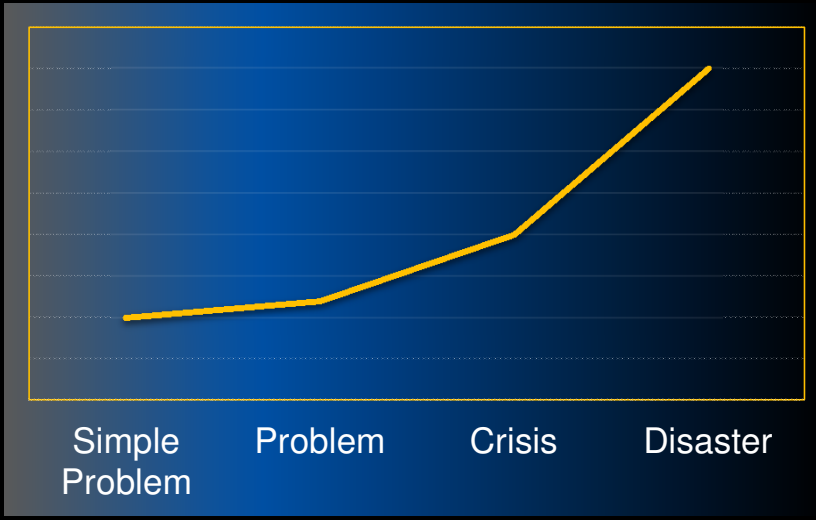


Address Communication Challenges

- Problems tend to span areas:
  - HW
    - Processor
    - Storage
    - Network
  - z/VM
  - Linux
  - Middleware
  - Applications

- Think about the exponential growth in email traffic as you move out on the curve

- When do people get introduced to situation?
  - When did YOU learn what?



Situation for Dummies

- Quick guide to explain things over and over and over again
- Problem summary
  - Agreed solution criteria
- General configuration
  - How many CPCs? How many z/VM partitions? How many other systems? Etc.
  - Basic diagram
- Who is who?
- Chronology
- Steps/Recommendations done so far
- Pointers to where data resides

Conference Calls

- Be on time / End on time
- Establish how role call will be done
- Avoid back to back calls
- Different numbers for IBM and IBM/Client
- Say who is speaking.
  - Who? Bill? Bill Who?
  - The more people there are, the more important this is.
- Remember the audience for different calls may have different levels of technical background
  - Taking time to establish terminology or background as necessary
- Prep calls before the real calls
  - Are valuable in some cases (not so much in others).
  - Helpful to establish the flow of the dialogue in terms of content / speaker
  - What to be prepared to deal with
- Every hour spent talking about what people need to do, is an hour they can't spend on doing what they need to do.

Other Communication Tips

- Avoid the shotgun email
  - Wastes time and creates duplicate work
- Take notes
  - Your memory is not as good as you remember
  - The worst situations go on for a long time, and that's when the notes are most valuable
- Listen
- Force people to listen if necessary
  - A crisis tends to make people think they have to multi-task all the time

Data Gathering

- You'll often need data at various levels of the system
  - List: what data, who on client side sends data, who on IBM side receives data
  - Have "Must Gather" data lists ready to go
- When asking for data, be prepared to describe exactly how that information is gathered.
- Can you even get data? Are there security or privacy roadblocks?
- Ensure data covers same span of time and granularity
- Establish who will send and receive data
- What constitutes complete data? Validate and confirm

More Data Gathering

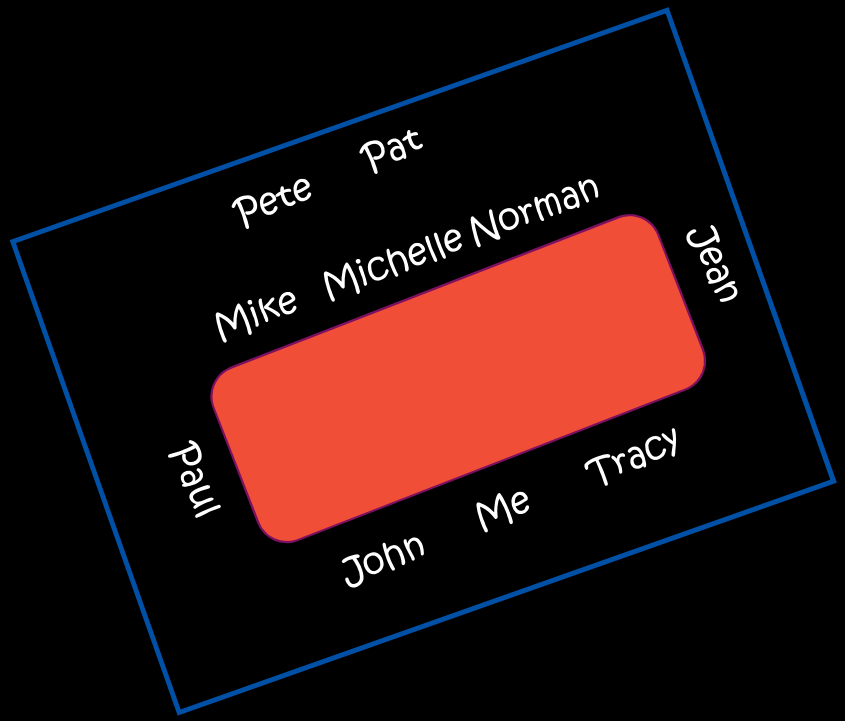
- Establish naming conventions and document (index) what data is what
- Known the time zone of each piece of data
- Establish where data will be kept and who will have access
- Sometimes data and tools have to go both ways. Have a process.
- One of the most common problems is z/VM data that IBM can't read when it gets it
  - Typically recommend packing via COPYFILE or VMARC
    - Ensures end of record for variable length files retain structure
  - Transmit packed file as binary
    - Avoids numerous problems
  - Files that are fixed length and binary do not necessarily need packing (compression) though that can help with network transmit time

Filling the Sky with IBMers

- Deciding when to go on-site
  - Usually more effective in office
  - Sometimes it is invaluable to be on-site
    - Understand situation
    - Focus on working towards a solution
    - Showing love
- Attitudes of teamwork on both sides makes it a mission rather than a hostage situation
- IBMers things to take:
  - Publications and references
  - Situation for Dummies information
  - Phone numbers of your life lines
- Other considerations
  - Normal travel procedures
  - Security:
    - Does customer have your name as on ID? (e.g. Bill <> William)
    - What can you bring onto their site? What can you take out?
  - Connectivity
- Did you get a round trip ticket? ☺

Face to Face Meetings

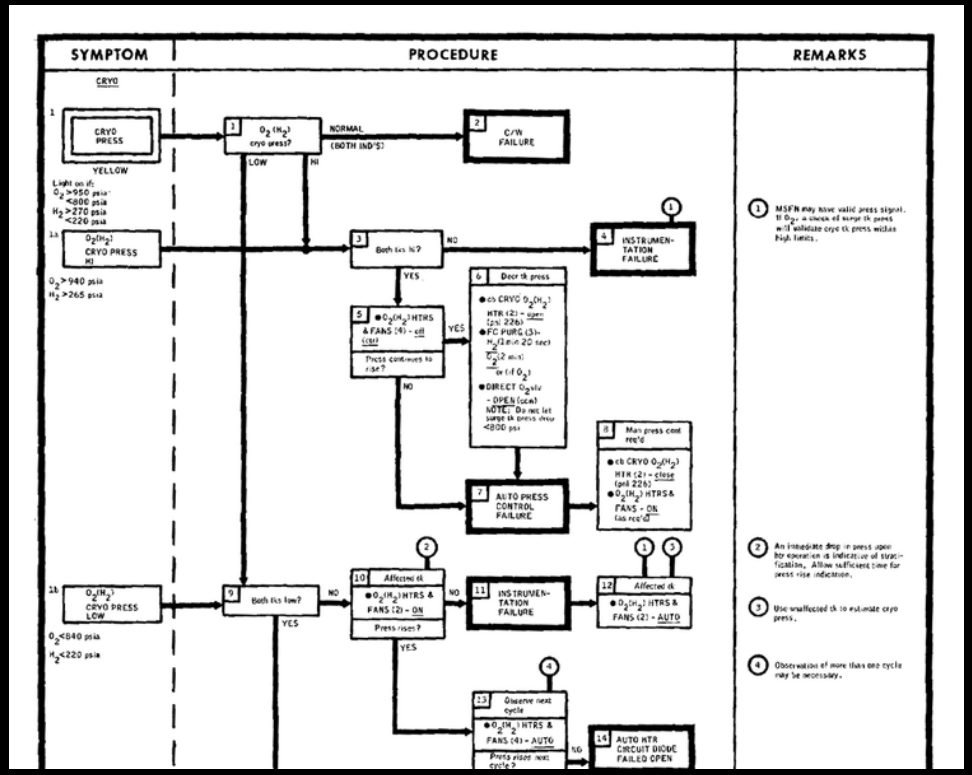
- Be on time
- Think about where you are sitting
  - What's your role?
  - Seeing the players involved?
  - Who is most likely to be the most upset?
- Diagram the meeting so you remember later who was who
- Take notes
  - Laptop vs. pen & paper
- Stay focused



Processes – Giving Instructions

- Think about the level of detail the person **executing** the instructions needs to do it right
  - Perhaps get someone to review that doesn't know anything
- Steps that are numbered and can be checked off
- WebEx or other way to share screen so you can see if they make a typo or are on the wrong screen
- If you feel you don't have time to walk through the procedure, it's most likely you don't have time to get the procedure wrong.
- Avoid over whelming with documentation, be clear what steps are client's role and which are IBM's role.

Problem Solving & Analysis



Attitude

- You have to be focused on solving the problem, not just proving you're not to blame.
  - Be part of a team
- IBMers: Treat customers like people, because they are.
- Customers: Treat IBMers like people.
- IBMers: Customers forgive mistakes, they don't forgive excuses

Don’t be too Distracted by Design

> “I don’t care about what anything was designed to do; I care about what it can do.”
>
> – movie Gene Kranz

- There are times where we can’t trust documentation and design
- Having the experts and code and validating can be critical
- Need to validate fixes and corrective actions
  - In a crisis, risk aversion becomes even more heightened

Conjecture vs Fact

"Okay, let's everyone keep cool … Let's solve the problem, but let's not make it any worse by guessing."

– Gene Kranz, NASA Flight Director

- Conjecture is not bad
- Believing conjecture to be fact is bad
- Be certain to identify whether what you're sharing is conjecture or fact
- If conjecture
  - On what is it based? Is there an experiment that can be done to verify it?

Impulse to think it's the same thing you just saw

"We may have had an instrumentation problem, Flight."
– Sy Liebergot, EECOM

- Normal impulse to assume something with similar symptoms is the same as you just saw
- Often seen in PTF recommendations
- Need to offer as a possibility and validate
- Be careful that this does not derail analysis in progress

Correlation does not imply Causation

- Example: As ice cream sales increase, the rate of drowning deaths increases sharply. Therefore, ice cream consumption causes drowning.

- Things that are highly correlated give us good hints as to where to possibly investigate

Combine Analysis Threads

- Complex problems often have many components or layers, each with an expert doing analysis
- Need to take time to combine the findings and discuss
- See earlier discussion on making people listen

Learn why someone thinks a wrong answer is correct

- Progress is slowed when there is not agreement on the next step or the information shared to date
- Take time to listen and understand why people feel an incorrect answer is right
- Most often
  - Confused terminology
  - A concept that is not fully understood
  - Old information

You're in my light

- Part of supporting a technical leader and team is to stay out of their light
  - Bringing up things already covered
  - Interrupting or diverting the current topic
  - Asking for updates outside of the agreed channels/times
  - Doing an end-around
- This also applies to data collection
  - E.g. TCP/IP dumps in middle of measurement
- To help avoid this, provide a time for brain storming and fresh ideas

Other Thoughts

Transient Leadership

- While there may be project management leadership, there is often a need for a technical leader
  - Role may be driven by being the ‘right’ person, and not just a ‘title’
  - May shift from one person(s) to another during the course of situation
  - May also be the ‘voice’ of IBM on calls

- Three guides of transient leaderhip:
  - You have to make decisions, or at least drive them
  - You will seek the best information going into a decision
  - You will communicate decisions made to all the team

- Mutual support

- Find ways to celebrate and encourage throughout the process

Identify Actionable Items

- Ensure that critical actions will take place
  - E.g. Formal PTF applied when available to replace fix test or prototype
  - E.g. Add additional page volumes to be added
- Items directly related to the situation
- Items not directly related to the situation
  - Things noticed during the analysis that would be ‘good to do’
  - Things held off during the situation to avoid changing more than one thing at a time

Create a “Lessons Learned”

- When a crisis is over, the last thing you’ll want to do is look back at it all. You’re just glad it’s over!
- Try to keep a note of things that really helped in the situation & what you wish had been done differently.
- If there are enough items, consider sharing and discussing.
- For items that didn’t work, can you change the process/system for next time?

Other Thoughts

- Test LPAR: Having a simple or stripped down system that you can easily bring up to try things.
- Guard against burn-out
- Guard against 'A lack of seen activity is a lack of work'
  - Firing up a new test before the results of previous test are fully analyzed may be a waste of time
- How long a situation lasts depends, with SWR being a factor. But no one really knows how long it will take.
  - May impact work-life imbalance
  - May require you to have a back up for your role
- Optimize for production, not a benchmark
- z Systems capability helps
  - Additional capacity dynamically

KEEP CALM AND VIRTUALIZE ON