IBM Software Services for WebSphere

Management in the Large

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My Passions

- Getting systems to work
- Challenge of figuring out what new technology can be used for
- People and growing their skills

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Agenda

- Context
- Story of 4 clients – their strengths and weaknesses
- Finding the balance for key aspects of managing IT
- Final thoughts

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My Context for this Talk

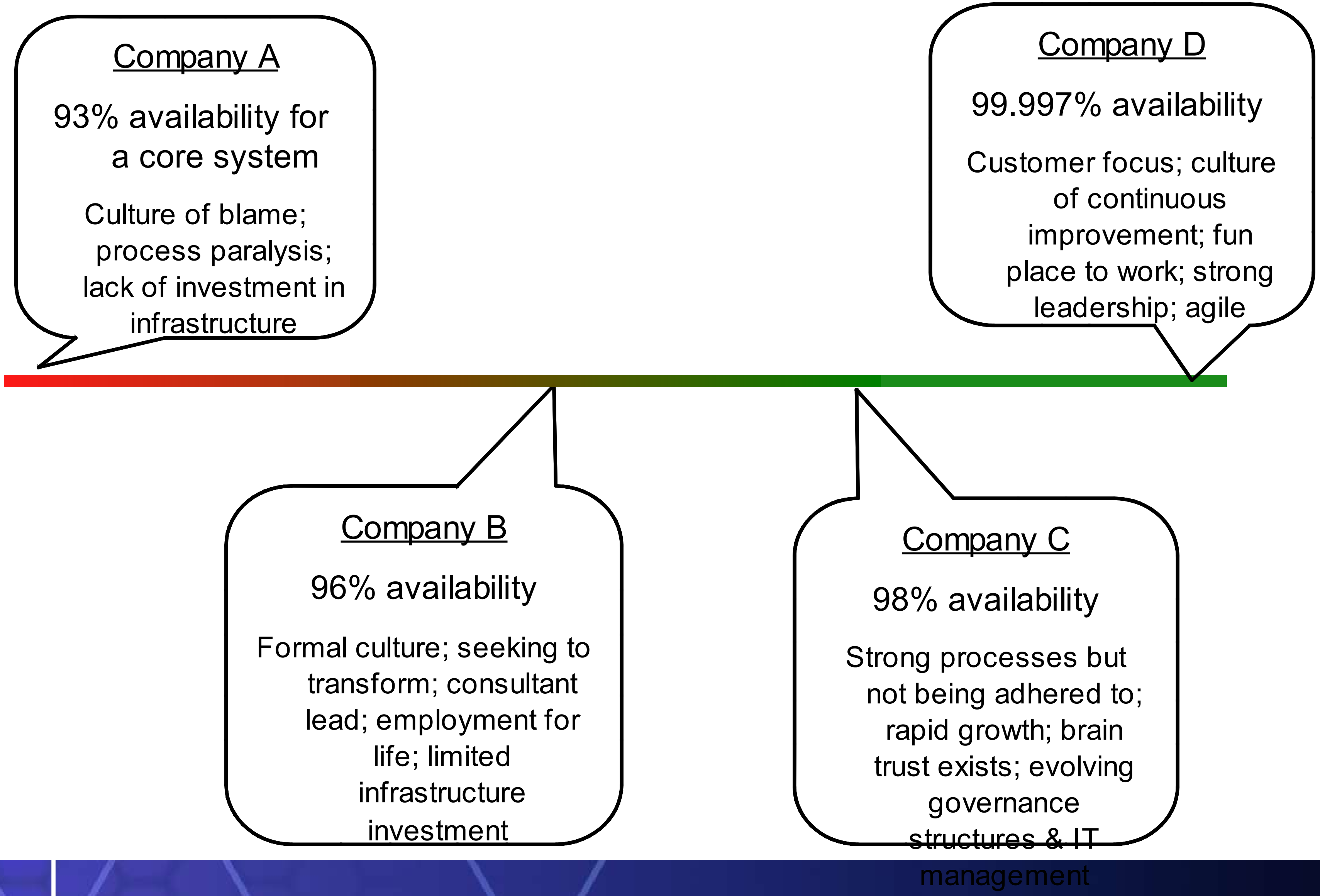
- Much of my career has been focused on First-of-a-Kind projects with Enterprise clients
  - Focused on development side
- More recent years I consult with clients adopting IBM technologies, particularly Service Oriented Architecture and Enterprise Service Bus
  - From development thru to production
  - Across multiple projects
  - Increasing my focus on infrastructure and operations
- This year I and my team have worked with clients at opposite extremes wrt to their ability to support their platforms, adapt to change, and support new technology adoption

Bottom Line

‘You Reap What You Sow’

Whatsoever a man soweth, that shall he also reap. – Bible *Galatians VI*

Spectrum of Excellence in IT Management



Company A

93% availability for a core system

Culture of blame; process paralysis; lack of investment in infrastructure

Company B

96% availability

Formal culture; seeking to transform; consultant lead; employment for life; limited infrastructure investment

Company C

98% availability

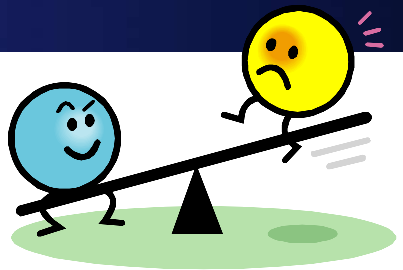
Strong processes but not being adhered to; rapid growth; brain trust exists; evolving governance structures & IT management

Company D

99.997% availability

Customer focus; culture of continuous improvement; fun place to work; strong leadership; agile

Culture and Management



Blame ->

Indecision/fear

obfuscation

Accountability ->

Improvement;

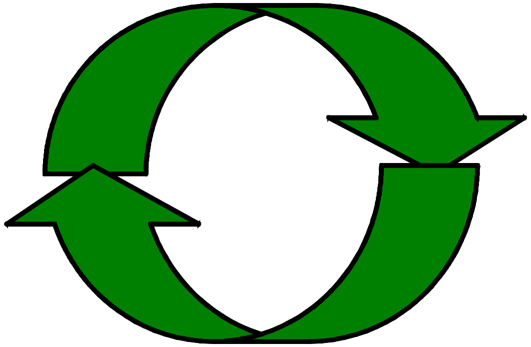
empowerment

Nice, ‘It’s ok’ ->

Status quo

- You must recognize and address culture issues
- Leadership starts from the top, but one respected person can make a difference
- Pilot change
- Plan for succession
- Focus on the business and customer
- What makes a good leader?
  - Decisive, listens to her team and understands her environment, maintains focus, empowers her team, recognizes effort and accomplishment

Requirements and IT Relationship to the Business



IT initiates

Project for business

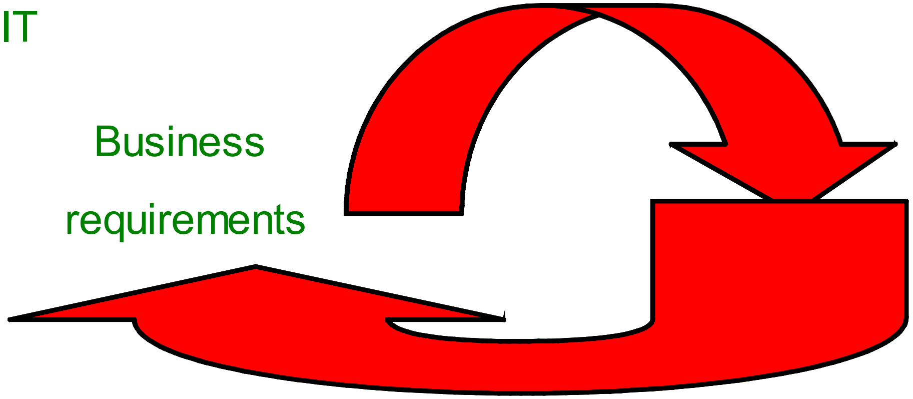
IT delivers well/
meets
requirements

Business trusts

(and funds) IT

Business

requirements



IT initiates

Project for business

IT fails to

Deliver on

requirements

Business distrusts IT and starts to go around IT

Business

requirements

Investment in People

- Attrition is very expensive – focus on keeping good people
- Make your company (department) a good place to work
  - Accomplishment, recognition, and decent pay/benefits
  - Challenges and opportunity to grow skills
  - Have a visible technical career path
  - Listen and address concerns
  - Shelter from politics
- Don’t rely on heroes. Heroes have a limited life
  - They are not Supermen – they will get tired, make mistakes, be unhappy, get sick, and eventually leave
- Establish a ‘brain trust’ – core set of technical leaders who work together on key initiatives and technical governance
- Capture what your best people do in documentation and processes

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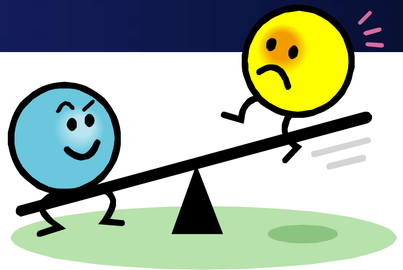
Processes and Governance



Minimal processes or No adherence to processes

- Higher cost/time to do anything
- Costly mistakes (same mistakes) and inconsistent quality
- Reliance on institutional knowledge and Heroes

Good processes

- ‘Makes your work easier to complete’
- Thoroughness
- Reduces requirement for everyone to be an expert
- Enforced
- Includes exceptions

To Much Process

- Non-consumable; gets ignored or worked around
- Avoid decision making and accountability
- Length cost and time significantly
- Stagnation

Architecture, Design, and Investment

- How much redundancy in production does it take to be highly available?
  - 3 systems each able to take full load
    - At least 2 of them live at anytime
    - 3rd system to be able to take offline and do maintaince
  - Duplicated data across 2 live systems
  - Company D – runs 4 redundant systems including DBs
  - Multiple data centers geographically apart and backup energy sources
- Architect and Design for failures and spikes
  - Examples:
    - Partner service not available
    - Cache goes down
    - Marketing puts out ‘great offer’ – viral
  - Focus on error cases, timeouts, etc
  - What level of reliability needed where?
  - Capacity planning
  - Avoid concentration of risk, i.e. separate critical systems

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New Technology Adoption has many Dimensions

- Selection / Evaluation
- Finance
- Assignment
- Exploitation Roadmap
- Education Roadmap
- Capacity
- Monitoring
- Facilities
- Availability / Topology
- Test
  - Monitoring
  - Availability
  - Performance / scalability benchmarking
- Runbooks
  - Change management
  - Incident management
  - Maintenance strategy
- Currency

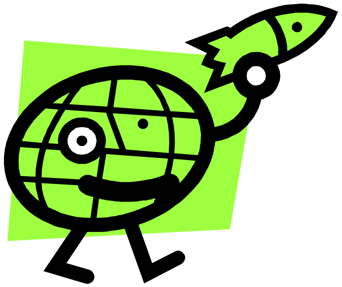
Taken from work by Andre Tost, IBM STSM. Article coming out shortly on IBM developerworks site.

Testing

- How many environments do you need?
  - No one has as many as they would like
- Production replica
  - Must have HA configuration for 1st level of failover
  - Must have similar monitoring
  - Must have same network
- Common pitfalls
  - Performance testing not started early enough
  - Customer acceptance testing to late to make changes
  - Lack of dynamic, automated provisioning
  - Testing not automated
  - Lack of strong regression test
- How much simultaneous testing of applications/services sharing infrastructure is needed? No simple answer

Types of testing against production replica
- Customer acceptance testing (may or may not have to be replica)
- Production debugging
- Performance testing
- Integration testing
- Negative testing
- Infrastructure upgrade
- Monitoring

Operations and Monitoring



- Operations
  - Operations transition is often a rocket over a wall
  - All to common to have insufficient documentation, particularly runbooks, and minimal to no training on new technologies
  - To often replies on institutional knowledge and on infrastructure/development teams when problems occur
  - Investing in documentation, strong processes, and training pays off
- Monitoring
  - Requirements can be coming from all directions, often vague, and need to be understood and prioritized
  - Clear ownership is needed
  - Focus on meeting key requirements – early as part of design
  - Alerts only work if someone is watching and knows what action to take

Change Management

- Failures/outages occur because
  - Hardware, power, or partner failures
  - Software failures because of unplanned volumes or corner/error cases
  - Software or infrastructure changes
- Critical to manage changes
  - Change board cannot be a weak process; must assess risk; traceability
  - Backups need to exist and work
  - Be careful of ‘oh, we forgot this one small thing on the change ticket’
  - Group changes together
  - Assess and execute ‘right’ level of testing – regression testing is key
  - … and validate the changes in production
  - Enforce freezes for critical times
  - Train new personnel and check their work
- When something goes wrong, something changed

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Final thoughts

- No magic bullet
- You can make a difference
  - Build team environment
  - Say ‘thank you’
  - Post mortems (accountability, not blame)
  - Actions on post mortems and assessments
  - Advocate for what is needed – leverage failures to make ROI cases
  - Clear communication of issues
  - Incrementally improve testing and provisioning