How method-based problem diagnosis can cut downtime by 97%

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Routing of Problems

Service Desk

- In-house Server Team
- Supplier A Maintenance & Technical Support
- In-house Desktop Team
- Supplier B Maintenance & Technical Support
- In-house Network Team
- Supplier C Maintenance & Technical Support
- In-house Application Team
- Supplier D Maintenance & Technical Support
Grey Problems are typically:

- What forms the bulk of ongoing recurring problems
- Medium or low priority (high impact / low urgency)
- Slow to resolve
- Heavy on IT resource
- A sign of problems to come
- What gets remembered
- What defines IT performance

Additional impact:

- Close down IT options
- Create a fog
- Business adjusts
Problem Phases

- **Phase 1**
  - Dealt with by Help Desk / 1st line support
  - Simple problems and user errors
  - Service recovery based on knowledge and procedures
  - Service recovery within 16 hours worked

- **Phase 2**
  - Dealt with by 2nd / 3rd line support
  - Issues caused by faults, overload or misconfiguration
  - Service recovery or fixed knowledge, tools and knowledge-base access
  - Achieved within a further 24 worked hours

- **Phase 3**
  - Dealt with by 3rd line support with supplier product specialist
  - Complex problems, often performance related and/or intermittent
  - Fixed through pattern method, detailed product knowledge and advanced tools
  - Fixed within further 24 worked hours

- **Phase 4**
  - More and more people get involved
  - Complex problems that have dropped through Phase 3 with root cause unknown
  - Attempts to fix through holistic method, gut feel, random upgrades, etc.
  - May be fixed within from 10 days to 2+ years or may never be fixed
Problem Diagnosis Gap

IT Operations

Service Operation
- Incident
- Problem Mgmt
- CCR Mgmt
- etc.

Platforms
- Desktop
- Network
- WPG
- etc.

Procedural Skills

Technical Skills

Gap
Typical Resulting Model
RPR - What to Do & How to Do It

**Core Process**

- **Discover**
  - Gather & review existing information
  - Reach an agreed understanding

- **Investigate**
  - Create & execute a diagnostic plan
  - Analyse & iterate if necessary
  - Identify Root Cause

- **Fix**
  - Translate diagnostic data
  - Determine & implement fix
  - Confirm Root Cause addressed

**Supporting Techniques**

- **Initiation & Planning**
- **Diag Capture**
- **Analysis**
- **Tools**
Definitive Diagnostics

- Direct diagnostic correlation
  - User experience ↔ Diagnostic events

- Statistical data typically of little use
  - Lack of time correlation
  - Detail lost in averaging

- Timestamped diagnostic event recording needed
  - Diagnostic logs
  - Network traces
  - Process traces
  - Web logs
  - etc.
When to Change Tack

Root Cause

Problem

Fix

Workaround

Live with it

Giveaway terms:

“We’re just going to try one more thing”

“We made a change and it’s improved a bit”
Illustration of

Definitive Diagnostics
“It’s slow”
Fingers Were Pointing

- Must be a network problem because other branch applications are slow
- Must be a database problem because we’ve had other similar problems
- DBA said that it can’t be the database as all of the stored procedures profiled
“The Sports Coaching System is Slow”

Actual Problem

Click on Appointments in the menu bar it intermittently takes 10+ seconds to respond
Interpreting Wiggly Graphs

Not Definitive
Can’t Correlate with the user experience
Multi Trace Correlation
Time Accounting

<table>
<thead>
<tr>
<th>Component</th>
<th>Time Contribution (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>User PC</td>
<td>0.873</td>
</tr>
<tr>
<td>WAN</td>
<td>0.085</td>
</tr>
<tr>
<td>Web Server</td>
<td></td>
</tr>
<tr>
<td>- Central DB</td>
<td>10.779</td>
</tr>
<tr>
<td>- Branch DB</td>
<td>2.476</td>
</tr>
<tr>
<td>- Other</td>
<td>0.000</td>
</tr>
<tr>
<td>- Application</td>
<td>0.787</td>
</tr>
</tbody>
</table>

Two database stored procedure calls:
- dbo.usp_gr_sel_StaffListWithAppointmentByDate
- dbo.usp_gr_sel_AppointmentListByDate

Shouldn’t be there

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A Supporting Technique

The Whiteboard
TopFund Scenario

"It's unusable"
Whiteboard example

- **Symptoms**
  - Topfund users get type-ahead delays
  - Giant users get slow web access

- **Boundaries**
  - Only users in Cambridge
  - No other Acme users get the problem
  - Only happens with > 1 user

- **Possible Causes**
  - User PC
  - Cambridge LAN
  - Corporate WAN
  - Southampton LAN
  - VPN
  - Derby LAN
  - Citrix Servers

- **Other Observations**
  - Cambridge users get no other problems
  - No problems with other 3rd party apps
  - No one else has problems with TopFund

- **Action Plan**
  - Trace at user PC, Cambridge router, S’ton router, VPN S’ton firewall, VPN Derby firewall, Citrix servers

“That doesn’t explain why…….” is banned
TopFund Analysis

Minor fault here

Major fault here

Giant Finance

Cambridge

Southampton

User PC

User PC

User PC

Trace Capture

Trace Capture

Trace Capture

Trace Capture

Internet

Giant Finance WAN

Acme ASP

Derby

Citrix Server

Trace Capture

Trace Capture

Trace Capture

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Putting It Into Practice

A Workable Model
Use RPR to Create 4th Line Support

Fast & Effective Communication
End to End Approach

RPR Supporting Techniques
Examples

- Fund manager had an application start-up problem impacting 1,200 users for 8 months
  - Root cause identified in 2.5 days with RPR
  - Fixed in 3.2 days

- Bank had a system problem impacting 900 offshore users for 13 months
  - Customer ran £1.2m SIP for 10 months
  - Root cause identified in 1.5 days with RPR
  - Fixed in 4 days

- Mortgage company users suffered intermittent Citrix-hosted application failures for 11 months
  - Root cause identified in 5 days with RPR (thru’ REACT)
  - Downtime cost - £271k
  - REACT cost £9,800 => payback 12.5 days
Key Features & Benefits

- Based on definitive diagnostics
  - Easily deals with intermittent & transient problems

- Inherently evidence based
  - Bad information has little or no impact

- Spans technology silos
  - Deals with Service problems

- Deterministic process
  - You regain control, customer regains confidence

- Initial objective is Root Cause Identification
  - It’s consistently faster
How You Can Benefit – Now!

Set your own criteria for Phase 4

Ban
“That doesn’t explain why............”

“We’re just going to try one more thing”