

Can You Recover When Your Investments Crash?



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Disaster Recovery

....don't mention the War!

Can You Recover When Your Investments Crash?

Clients of IT increasingly demand reliability and redundancy of their services.

Design can sometimes focus exclusively on HA for preserving the environment *but, organisations also need to plan recovery in the face of a wider disaster.*

Question Time

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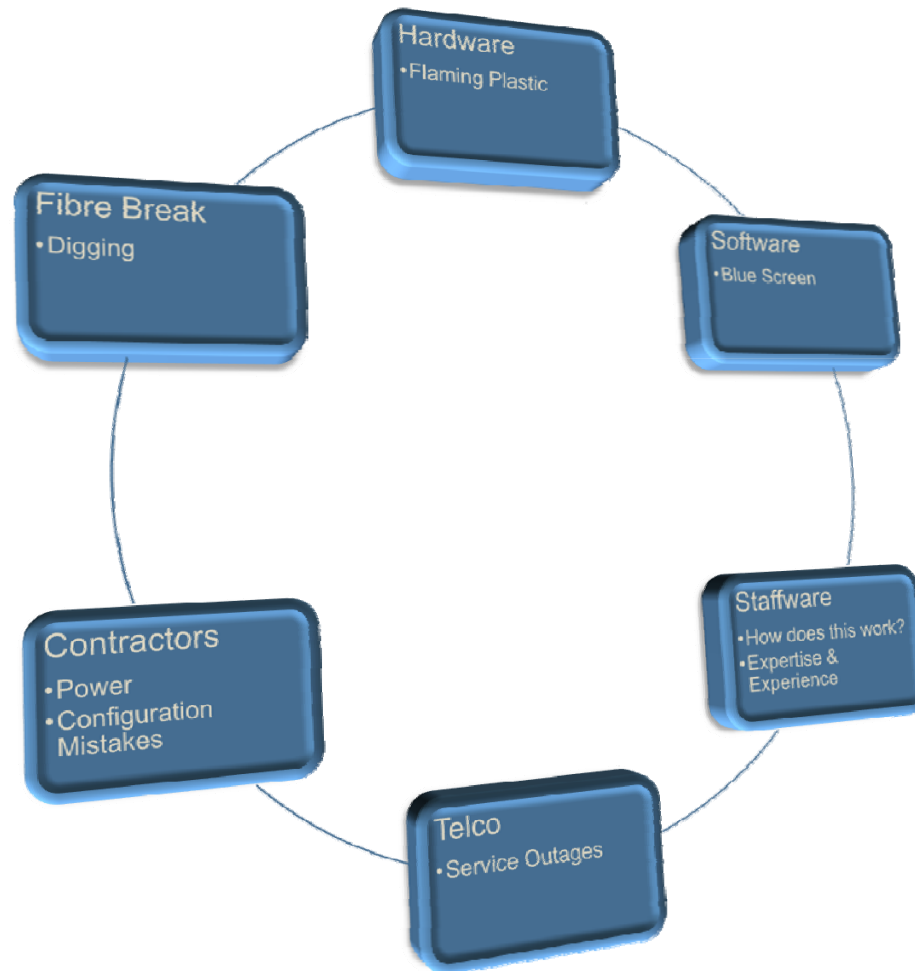
Your up-line manager asks, “Can you ensure that we will recover if there is a disaster for our IT systems?”

Do you:

- A. Dodge the question, heart attack/industrial deafness
- B. Defer to your immediate supervisor
- C. Hand over the URL to your DR documentation web pages
- D. Pretend you didn't hear

(Some) Faces of Disaster

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Question Time

Can You Recover When Your Investments Crash?

It could happen to you !

Has this happened to your network ?

- A. Core router failure
- B. Edge switch fail
- C. Config problems (otherwise known at PEBKAC)
- D. All the above?
- E. All the above on the same day !?!



QUT's Current DR Preparation

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- Wiki Documentation Store
Regular Review 12 monthly and after major changes
- Dry run workshops
- Summary documentation per service
- Service restoration ordered based on dependencies
- Live test disasters for Network Services
 - First Live Disaster test performed February 2009

QUT's Current DR Preparation

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Power Redundancy

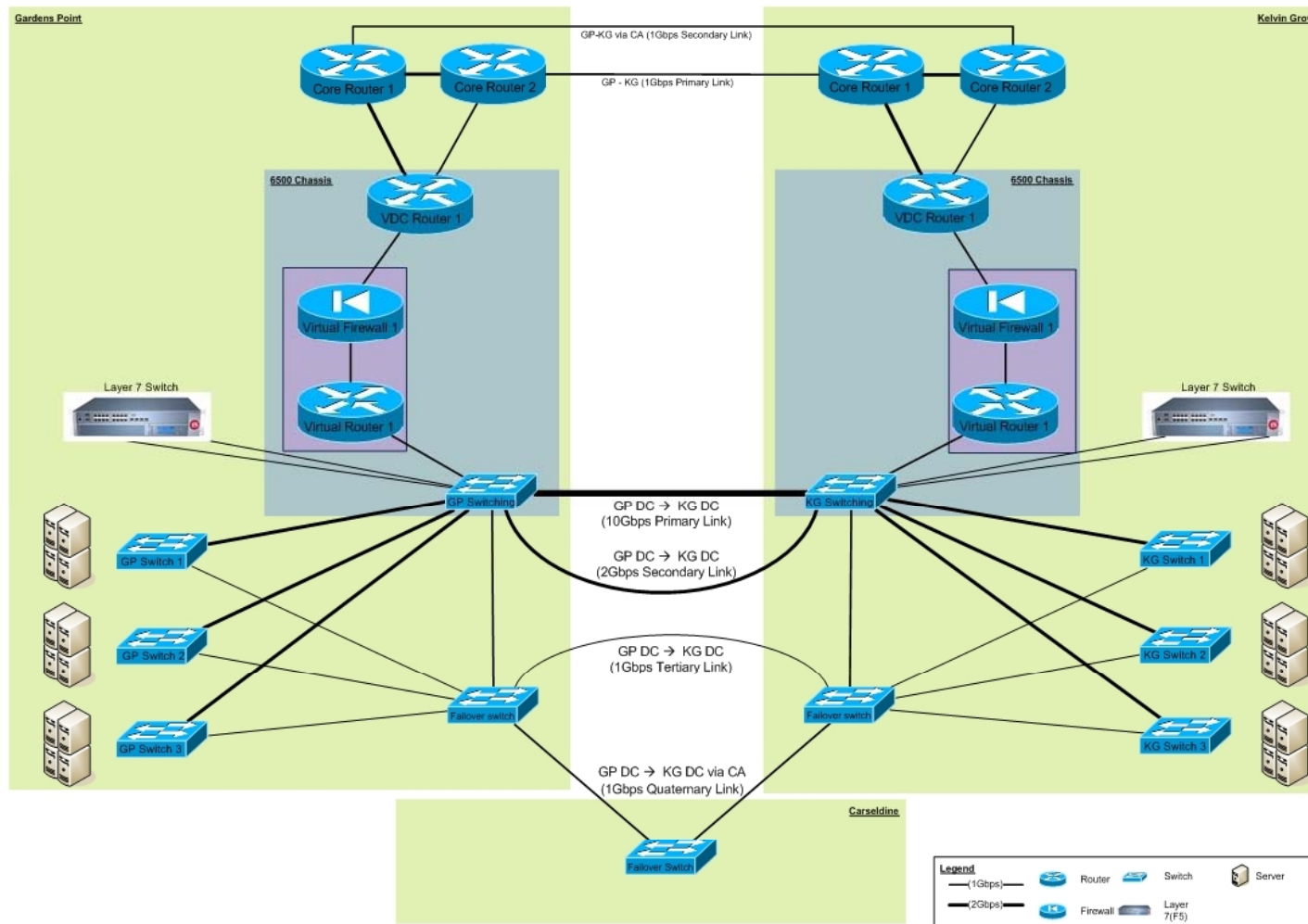
- UPS installed at KG
- UPS installation at GP planned Q4 2009

Virtual Data Centre Architecture

- Shared subnets between two data centres
- Multiple routers and multilink topology coupled with OSPF
- Extra backup links the long way around via Carseldine
- Planned VSS implementation for Kelvin Grove allowing for greater redundancy on campus

QUT's Current DR Preparation

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Network Redundancy

- OSPF leveraging multiple core campus routers
- Redundant fibre runs from buildings
- VSS implementation (Q3 2009)

Server Redundancy

- Dual campus installations of VMware
- Service IP concept making movement of services easier
- Geographically split server farms eg: Exchange

Question Time

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Do you believe your organisation is combat ready should a disaster hit your IT infrastructure?

- A. Yes
- B. No
- C. No, but almost ready
- D. Pretend you didn't hear

Live Test Disaster Scenarios

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Despite completed DR planning, there were reservations:

- Is the DR documentation accurate?
- Will the systems behave as expected?
- Do the staff know how equipment behaves during failure?
- How can staff be “trained” for disaster situations?
- How to test if we really can handle a disaster?
- Plus the endless “what if?” options...

Management want assurances on DR readiness but ...

How can we go to management and confidently say:
“We can handle a disaster” ?



SUITABILITY

Just because you can, doesn't mean you should.

QUT's Live Disaster HOWTO

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Documentation Considerations

- One service document outlining H/W, S/W & Staff capabilities
- Total recovery instructions, fairly straight forward (mostly)
- Partial failure details, many more considerations
- How can we restore service in multiple situations?
Specify the most likely candidates and the ones that are remotely possible it is not possible to cover every situation.
This is site specific so consider your own architecture
- Documentation needs a standardised layout so everyone knows where to look for what information.

QUT's Live Disaster HOWTO

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Documentation

- Specific templates
- Specified assumptions are required: environment, power, etc...
Do not get de-railed by looping “what if?” dependencies
- Appropriate scenarios for your local area, NOC used:
 1. Loss of Campus Data Centre
 2. Loss of Inter-Campus Network Links
 3. Failure of a Service Node
 4. Total Failure of the Service
 5. Individual HA Unit Failures (if applicable)
 6. Loss of key QUT technical Staff
- Create a separate document for each **critical service** being recorded.
Note: Only critical services for running the business need be considered

QUT's Live Disaster HOWTO

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Documentation Sections

- Resourcing: Hardware, Software and Staff Skills
- Under-pinning Service Dependencies
- Minimum Hardware Requirements
- Minimum Software Requirements
- Suggested Staff Skill Requirements
- Disaster Recovery Scenarios
 - What Impact does this Scenario have on the Service?
 - Hardware Preparation
 - Software Preparation
 - Configuration of Service
 - Testing of Service
 - Client/Server Changes Needed to Access Service



DR Prep

QUT's Current DR Testing

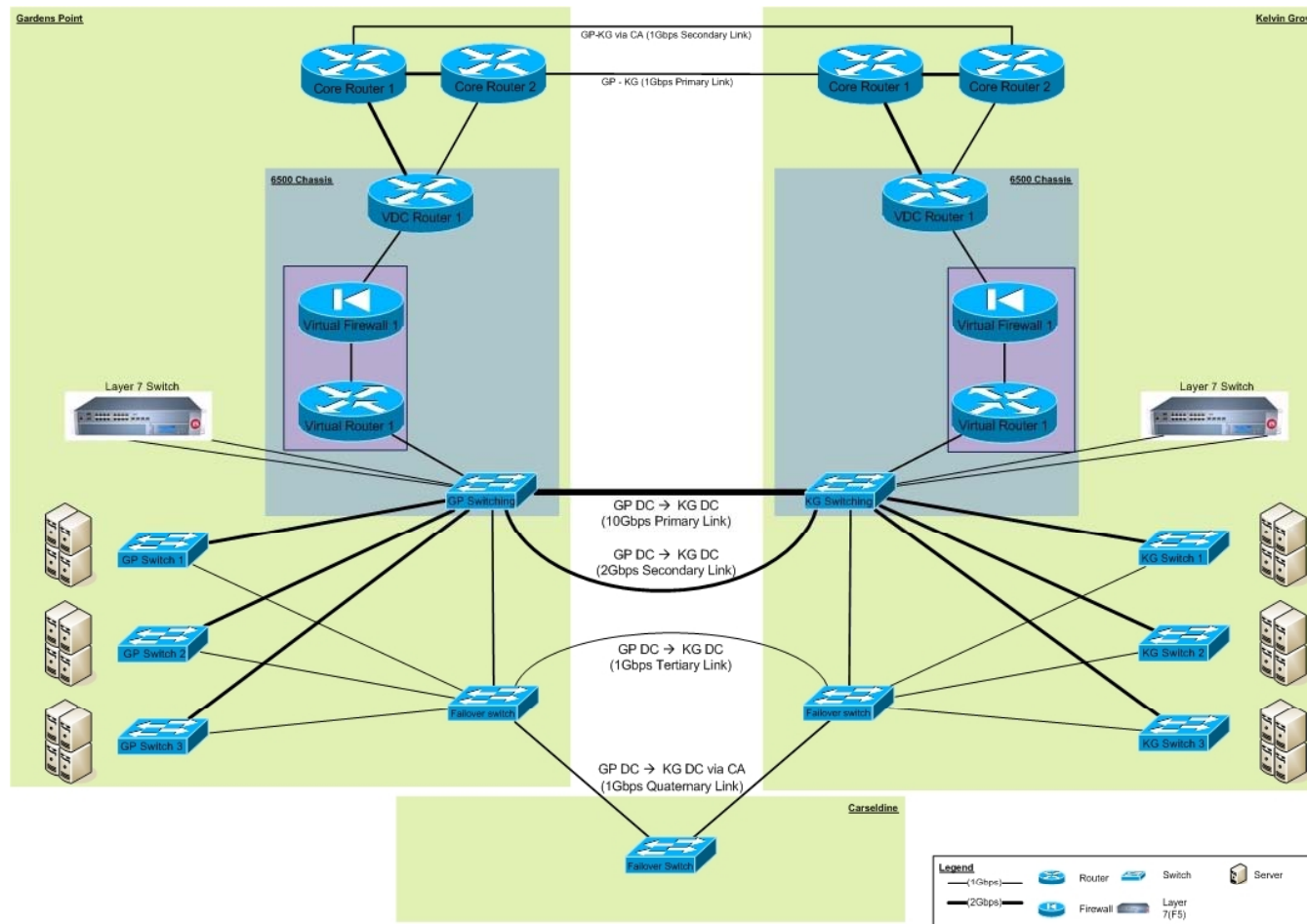
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Simulating the Loss of the Gardens Point (Primary) Data Centre

- Network Isolation of the secondary data centre at Kelvin Grove Campus
- Inter Campus links (GP & CA) shutdown
- Link shutdowns also allowed opportunity to test of the OSPF failovers and response
- Observations recorded on how the routing and systems behaved during partial network failure
- Total isolation “Destroyed” the GP data centre now we can observe the behaviour of NOC services in a broken state
- More importantly, we can test if our proposed DR action plan would really work to restore service

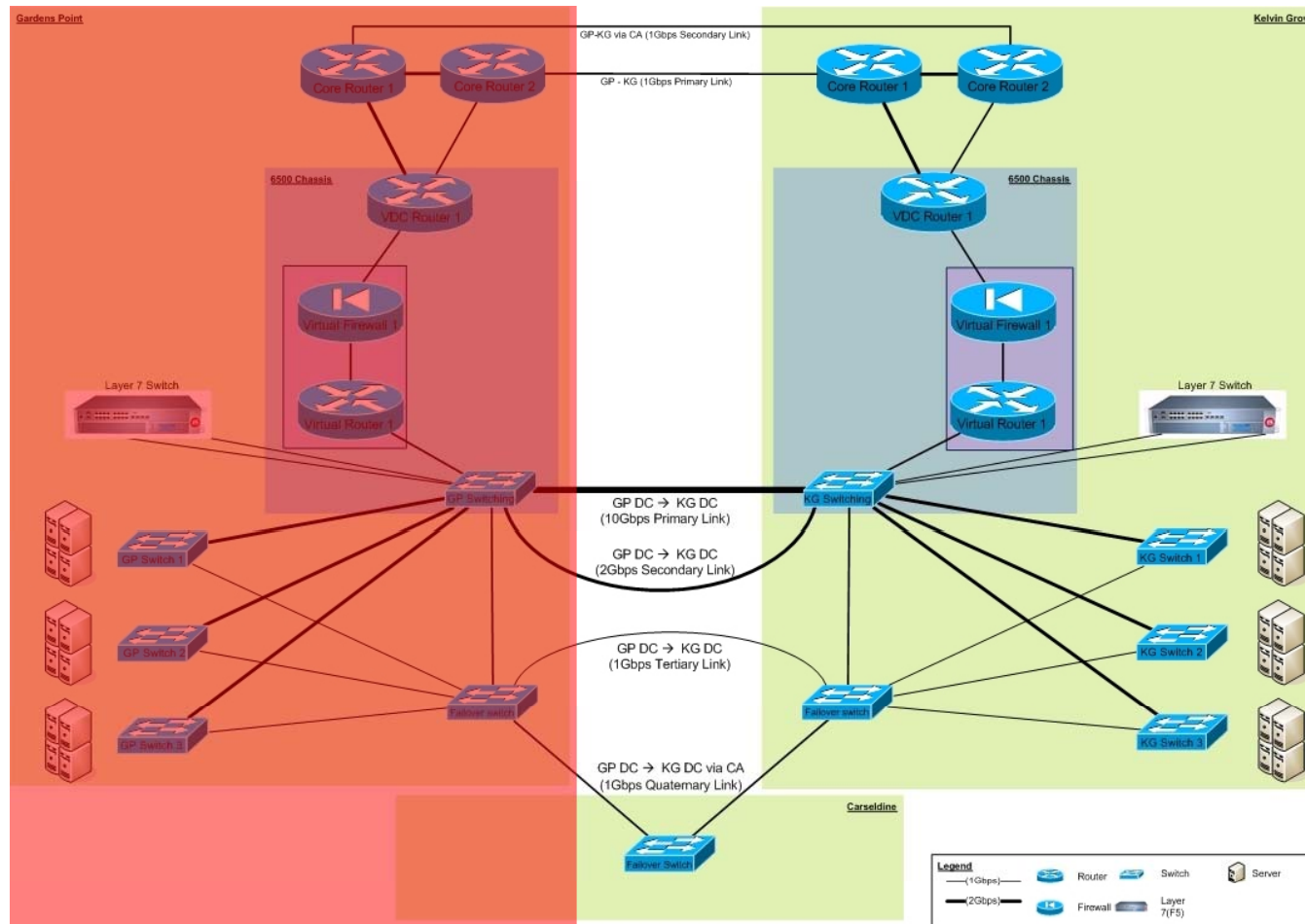
QUT's Current DR Preparation

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QUT's Current DR Testing

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Outcomes of the Live DR Test

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- Relief knowing that the DR documentation does work and procedures have been confirmed
- Staff experience has grown regarding how the services function both in optimum situations and when things are broken
- The exercise located faults that were thought to have been already fixed
- Management have evidence of DR readiness
- Settled staff; Exposure to faulty systems to fix and test without the stress of a real disaster allows for a better learning experience

Outcomes of the Live DR Test

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What Would we do Differently Next Time?

- Rotate the staff contingent to share the experience through the team
- Issues with communication to all stake holders initially gave us trouble. We allowed for 1 month first time through, next time 2 months notice for stakeholder information and confirmation
- This test was for a single scenario (data centre loss) next time perhaps a different scenario or look at testing multiple scenarios (limited to the maintenance window 10pm-8am)
- Offer other groups the opportunity to co-test their DR planning on the night as well
eg: VMware servers, Application Switched services (Layer7)

Question Time

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After Lunch, it's time to...

- A. Go back to work, it's not 5:00pm yet
- B. Go home, it's POETS Day

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