

# Power Discrimination Project

## Project Background

Mafi Mushkila was retained by a UK data centre operator to investigate a potential electrical discrimination problem; working with a number of third parties to:

- confirm that the problem existed
- design remedial solution
- prepare budgets
- manage IT outages to facilitate power down of rows of racks
- manage remedial works

The modular design of the data centre meant that it was easy to determine which electrical circuits could be affected. It was ascertained that a total of 28 distribution boards could be affected. Each distribution board fed 12 power strips and each power strip fed 12 outlets. A total of 4032 outlets were in the scheme; some servers within the data centre were single powered. A single power failure could result in the loss of multiple failures and IT service outages. It was calculated that 36 directly connected servers could be affected by a single fault. It was not possible to calculate how many indirect servers or services could be affected.

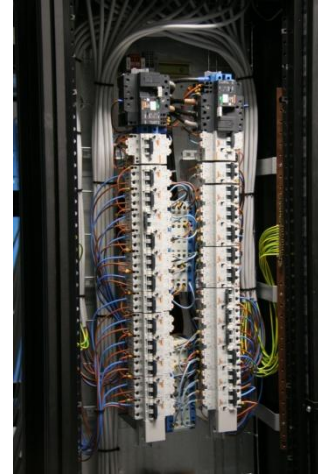
To prove the discrimination problem existed sample electrical components were obtained and a test laboratory was set up at one of the suppliers factories. To simulate the exact conditions of the installation proved a challenge; the main issue was to generate sufficient fault currents that a data centre can produce. Eventually the fault could be simulated.

Once the fault could be demonstrated reliably, a solution was developed to resolve the issues. During the solution design it became apparent that the solution would require the replacement of all 28 distribution boards. New boards were manufactured and delivered to site.

To allow these boards to be fitted a major communication programme, managed by Mafi Mushkila was initiated to obtain IT service outages. The 'A' and 'B' Distribution boards had to be replaced in pairs; each pair of distribution boards fed 12 racks of IT servers (owned by up to five business units, each with multiple business owners). Arranging a common shut down date proved to be a challenge.

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Mafi Mushkila successfully managed this complex end to end piece of work over a 19 month period. Mafi Mushkila managed all the communication with all shut downs and rework taking place overnight on Saturday nights. This work was completed with minimal service impact and in a safe and controlled manner

