



Over IP Group

Data Centre Infrastructure Management (DCIM)

Mission

To Protect the
World's Network
Through
Innovation



Let's Get Connected...

Over IP Group 

Agenda

- **The Aim of CenterOS DCIM**
- **What is the CenterOS DCIM Product?**
- **Core capabilities**
- **Benefits of using CenterOS for data centre management**
- **Reference Sites**

The Aim

Aim was to develop a tool to manage data centre resources

Solve the real issues that affect data centre managers

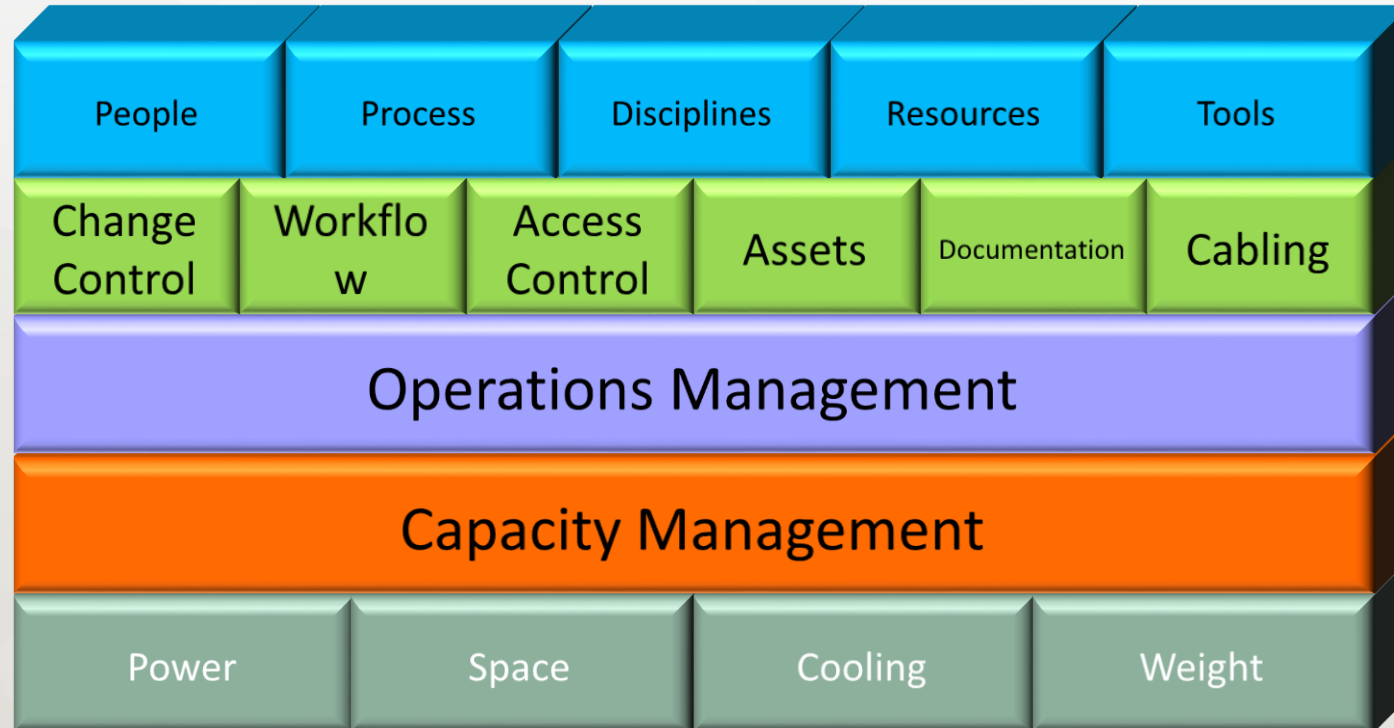
Simple to deploy and use

Cost effective TCO

Customer base in NZ, Australia and the USA

Dedicated to Data Centre and remote equipment environment

What is the CenterOS Product?

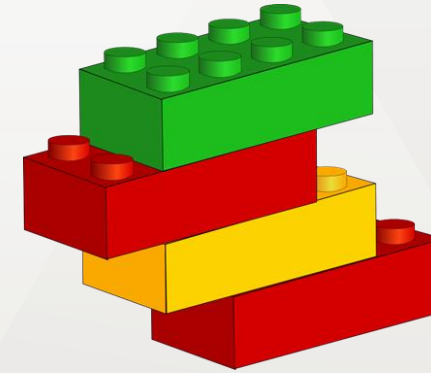


What is the CenterOS Product?

- **A specific tool for the management of data centre infrastructure [and rack based equipment outside DCs]**
- **Provides enterprise wide view of data centres**
- **Provides a facility wide view of each data centre**
- **Drill down to rack level, server and chassis level**
- **Centralised visual view**
- **Manages space, cooling and power capacity**
- **Change management, scenario testing and audit**
- **Real time power monitoring**

CenterOS Technology Platforms

- **Developed on industry standard .NET Framework**
- **Thin / smart client design**
- **Database is Microsoft SQL**
- **Onsite hosting or [SAAS] model**
- **In built reporting tool**
 - SQL data accessible for in-house reporting



Core Capabilities

Data centre, rack level and chassis view of resources

Management of key data points

Customers + stakeholders – internal and external

Floor space, Power, Cooling and Weight management

Asset management

Cable management

Access control through rack locking

Impact assessment and “what if” scenario testing

Change and workflow management associated with adds, moves and changes

Benefits of DCIM Using CenterOS

- **Capture the current “what is” state of data centres**
 - Reduces costs associated with re-audits [compliance]
 - Quickly determine available capacity
- **Centralised Records Management**
 - Single instance of truth eliminates duplicate errors
 - Capture asset management data specific to data centres
- **Faster time to market for new systems**
- **Reduced errors by using workflow management**
- **Locate devices by name, IP address or circuit ID**

...more

Benefits of DCIM Using CenterOS

- **Increased security through centralised rack locking**
- **Supports “Infrastructure on Demand” models**
- **Capacity planning – remove the surprises**
- **Reduce operational costs**
- **Greater resilience through “What if” scenario planning and impact analysis**
- **Ability to report capacity across all locations**
- **Life cycle management of assets**
- **Ability to integrate data – BMS, SNMP devices etc**

High Level Views

Job Status

Proposed, Approved, In Progress, Completed

Space view

Available Rack Units / Proposed RUs + Used RUs

Weight view

Utilisation of maximum weight / Used + Proposed weight

Heat view

Allocated heat load versus / Available cooling capacity

Power view – name plate rating

Available allocated power / Proposed Power + commissioned power

SNMP monitoring and real time power usage

Integration

BMS

Import data e.g. Branch Circuit Monitoring

Allocate specific MCB feeds to a rack, have generated PUE reports for customers based on this data

Rack Locking – Integrated 3rd party system [via SNMP]

Unlock rack from a floor plan view

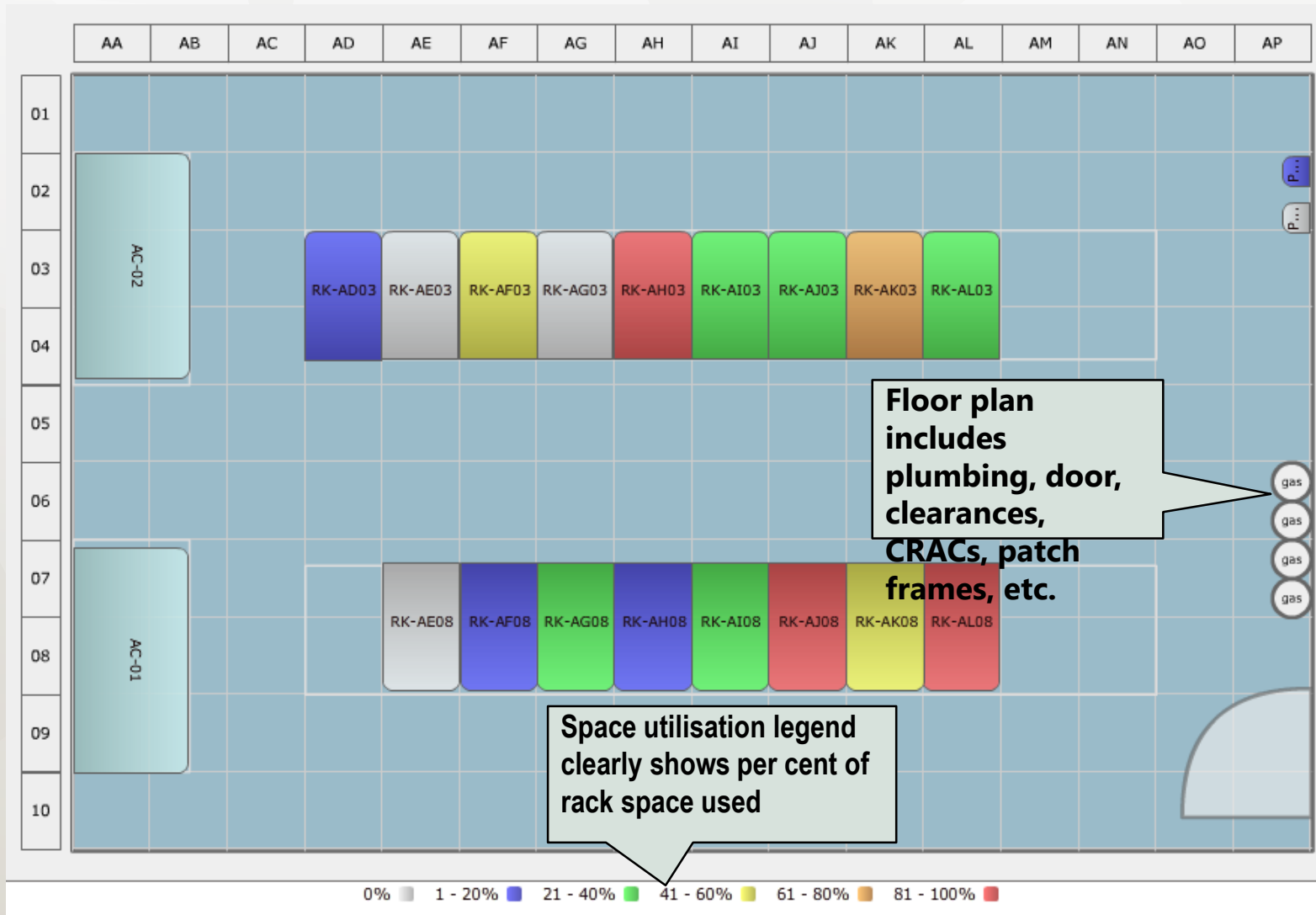
Visual representation of state & time to auto relock

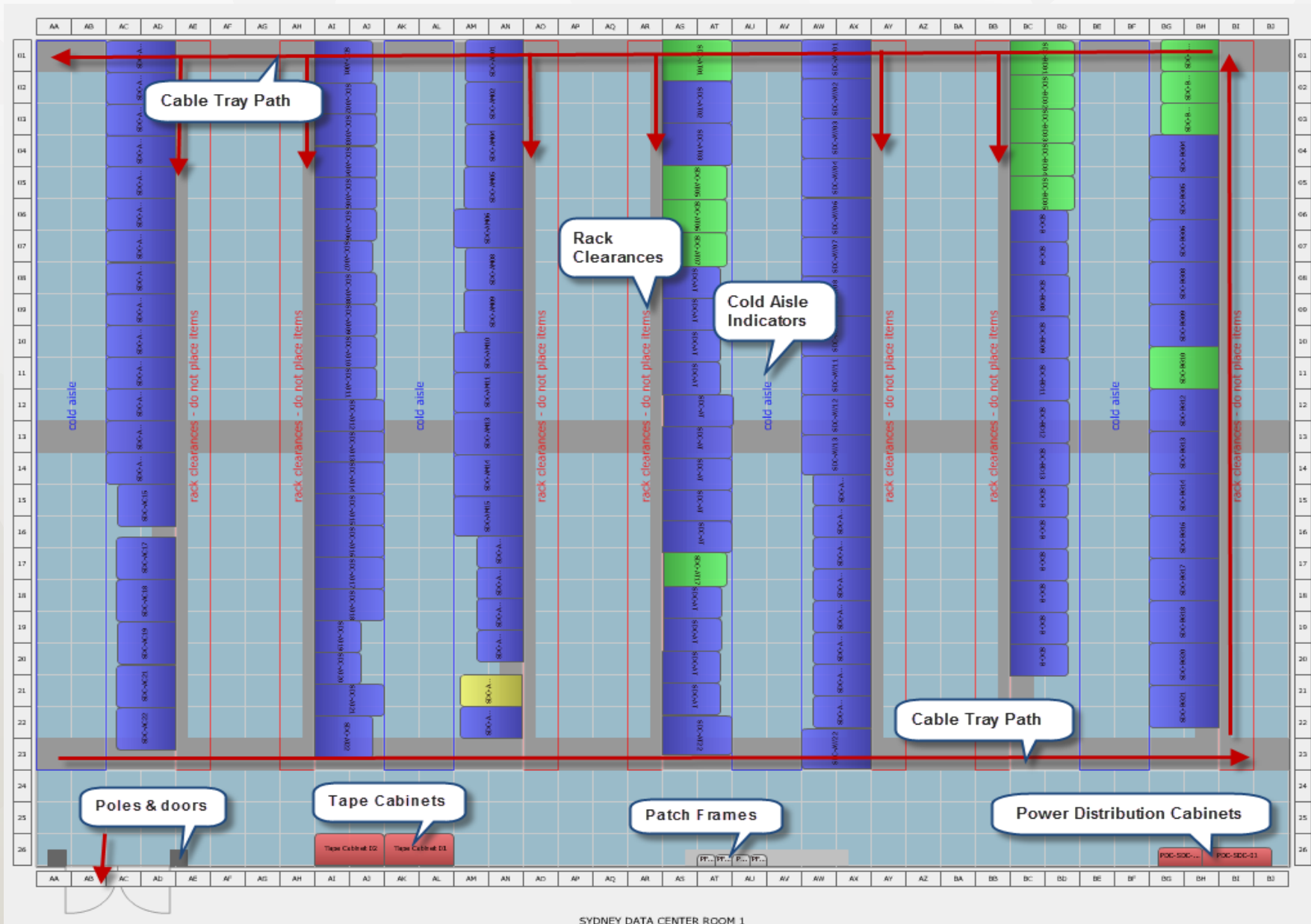
Asset Management [financial]

2 way exchange of data, eg written down asset value

API coming in the next version

Data Centre View





Rack View - Shows Rack usage

Shows specific rack/blade usage & server/device details

Label: PCL-CHCBLD-01
Desc: PCL-CHCBLD-01
Type: Blades - Chassis
Customer: Pumpkin Clothing Ltd
Rack (u): 7u (16.7% of 42 enclosure capacity)
Blade (u): 4u (10 avail. 14u max)

Blade Chassis are coloured by space available

resource	capacity	used	avail
rack (u)	42	36	6
weight (kg)	580	565	15
heat (kW)	16	8.5	7.5
power (amp)	30	27.02	2.98

space: 0% 1 - 20% 21 - 40% 41 - 60% 61 - 80% 81 - 100%

Rack Job Status – Planned vs. Deployed

The screenshot displays the CENTEROS room schematic interface for the Auckland Data Centre, Main Computer Room, Access Floor. The rack is labeled RK-AL08 (Rack AL08 Rittal TS8 42u/1000mm). The interface shows a list of items on the left, a task status table, a resource capacity table, and a rack layout diagram with front and back views.

Item List:

U	item
42(b)	PPU-RKAL08-1
39	MCGW-SVR-04
37	MCGW-SVR-03
33	MCGW-FW-01
32	MCGW-RTR-01
31	MCGW-SW-01
30	MCGW-SVR-02
28	MCGW-SVR-01
24	PCL-CHCBLD-01
22(b)	PDU-RAL08-A
20(h)	PDU-RAL08-B

Task Status Table:

task status	complete
Install	×
Connect	×
Connect	×
Connect	×
Connect	×

Resource Capacity Table:

resource	capacity	used	avail
rack (u)	42	36	6
weight (kg)	580	565	15
heat (kW)	16	8.5	7.5
power (amp)	30	27.02	2.98

Rack Layout Diagram:

The diagram shows the front and back views of the rack. Devices are color-coded by status: Proposed (blue), Approved (yellow), In Progress (orange), Complete (green), and Cancelled (red). The front view shows MCGW-SVR-04, MCGW-SVR-03, MCGW-FW-01, MCGW-RTR-01, MCGW-SW-01, MCGW-SVR-02, MCGW-SVR-01, PCL-CHCBLD-01, AKL-BLE-02, and AKL-BLE-01. The back view shows PPU-RKAL08-1, PDU-RAL08-A, and PDU-RAL08-B.

Annotations:

- Deployment task steps defined and tracked per device:** Points to the task status table.
- Easily view rack capacity as you place devices:** Points to the resource capacity table.
- Devices planned but not deployed are transparent:** Points to the blue-colored devices in the rack layout.

Job Status Legend:

job status: Proposed (blue) Approved (yellow) In Progress (orange) Complete (green) Cancelled (red)

Device Details

items item **MCGW-SVR-02**

details items properties resources sensors connectors connections contacts notes jobs

Server label/name & Description

label MCGW-SVR-02

description MCG Server 02, SQL Database Server

Asset Number, Serial Number, Bar code & IP Address

asset number MCGWSVR02-2004-19

serial number HPA9804H982DL190

bar code 987-5858493763

ip address 125.4.90.2

Device owner or department [internal or external]

owner * McGuigans Wine Ltd

Device hierarchy, blade in chassis, chassis in rack

data center Auckland Data Centre

room Main Computer Room

Type, Brand, Model, SLA,

template

type Server - Rack Mount

manufacturer Hewlett-Packard

model DL380

sla 24 x 7

Monitoring

monitoring ☐ enabled **protocol**

job status Proposed

Location-data centre & room details

parent RK-AL08

child

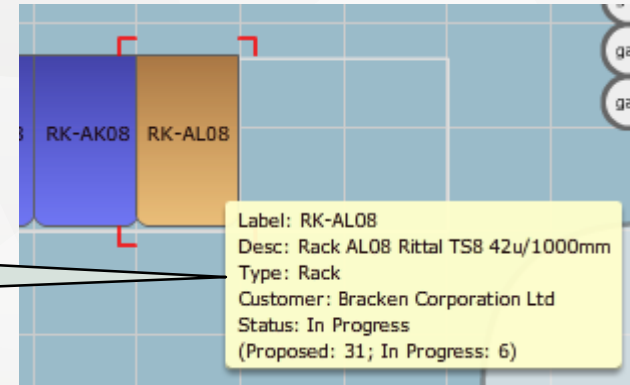
position 30

last update 31/03/2014 10:15 by Kate Tester (kate.test@overip.com)

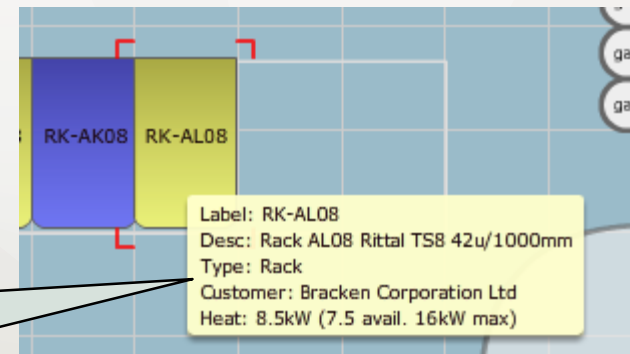
print reset save

Status Detail Views

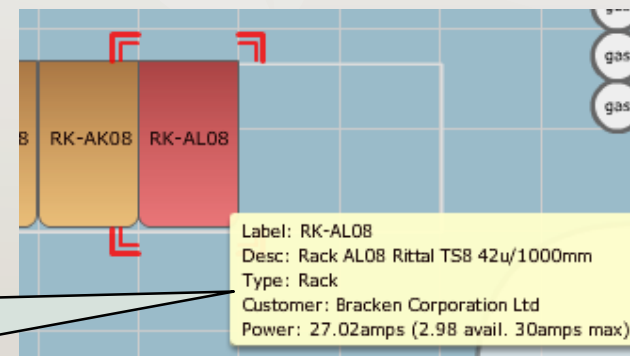
Job Status View - shows detail of proposed and in progress jobs



Heat Status Detail - shows available and allocated heat output [name plate basis OR through SNMP monitoring]



Power Status Detail - shows available and allocated power output [name plate basis OR through SNMP monitoring]

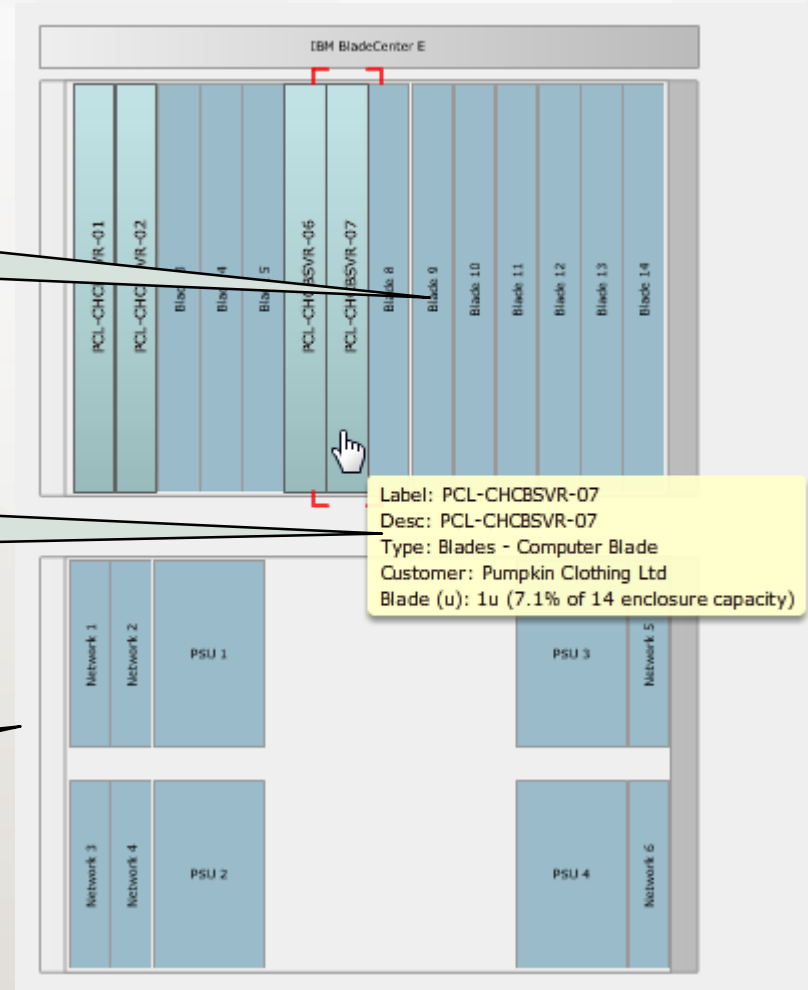


Blade Chassis Example

Device / Asset ownership by device down to a blade level

Utilisation of resources down to blades in a chassis

Front and rear views



Additional Details [per device]

Power rail and outlet connection detail

Server to power distribution unit to circuit board to UPS

Cable management documentation

Server to patch panel to switch route to patch frame

Asset details such as warranty or lease expiration, IP address, insurance values etc.

Escalation contact points

Authorised staff and service engineers

Service Levels that the devices need to support

Cable Management

connection path

details

from item	connector	color	path	to item	connector
MCGW-SVR-02	NIC-01	Gray	TRAYAL08	PPU-RKAL08-1	Port-03
PPU-RKAL08-1	Port-03	Blue	Overhead Tray	PM-AP02-01	03

items

item MCGW-SVR-02

details

items

prope...

resou...

monitoring

conne...

conne...

conta...

notes

jobs

type	connector	status
Power	PWR-A	Proposed
Power	PWR-B	Proposed
Network	NIC-01	Proposed
Network	NIC-02	Proposed

source

item MCGW-SVR-02

type Network

label NIC-01

connector RJ45

connection

label MCGWSVR02-PPUAL0803

color Gray

path TRAYAL08

media UTP - CAT 6

capacity 1000 Mb/s

destination

item PPU-RKAL08-1

type Network

label Port-03

connector RJ45 Panel Socket

print

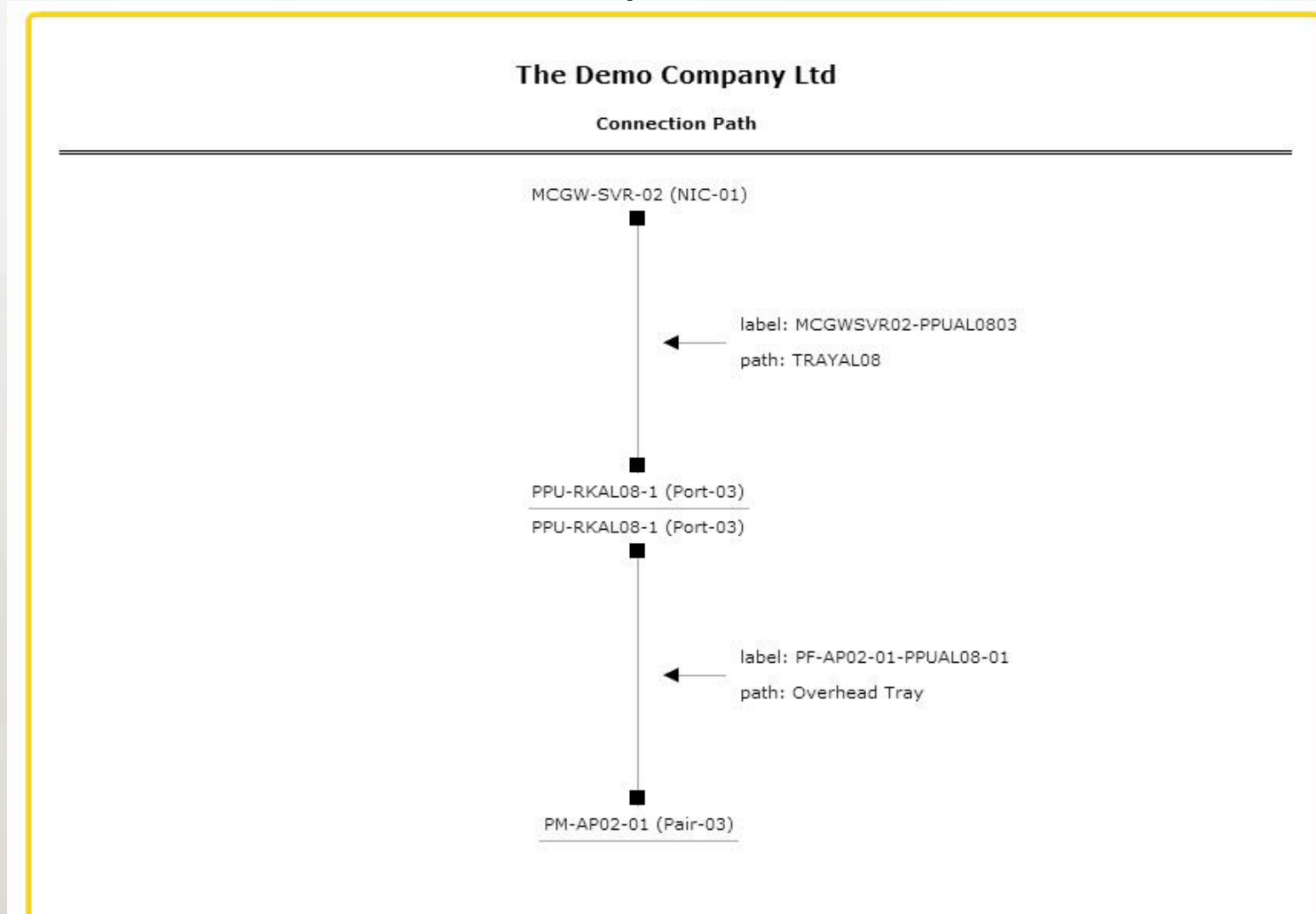
reset

save

Server to Patch Panel

Patch Panel to Patch module

Connection Path Report



Power Monitoring

- **Live Monitoring of intelligent PDUs using SNMP**
- **Access the Monitoring panel from Rack or Equipment view**
- **Gauges show what's happening with power in real time**
- **Can monitor any equipment enabled with SNMP**
- **MODBUS compatibility provided via adapter**
 - Can also do scheduled batch import of data pools
- **Sensors can be added to monitor equipment and also each individual connector**

Power Monitoring

What does this provide?

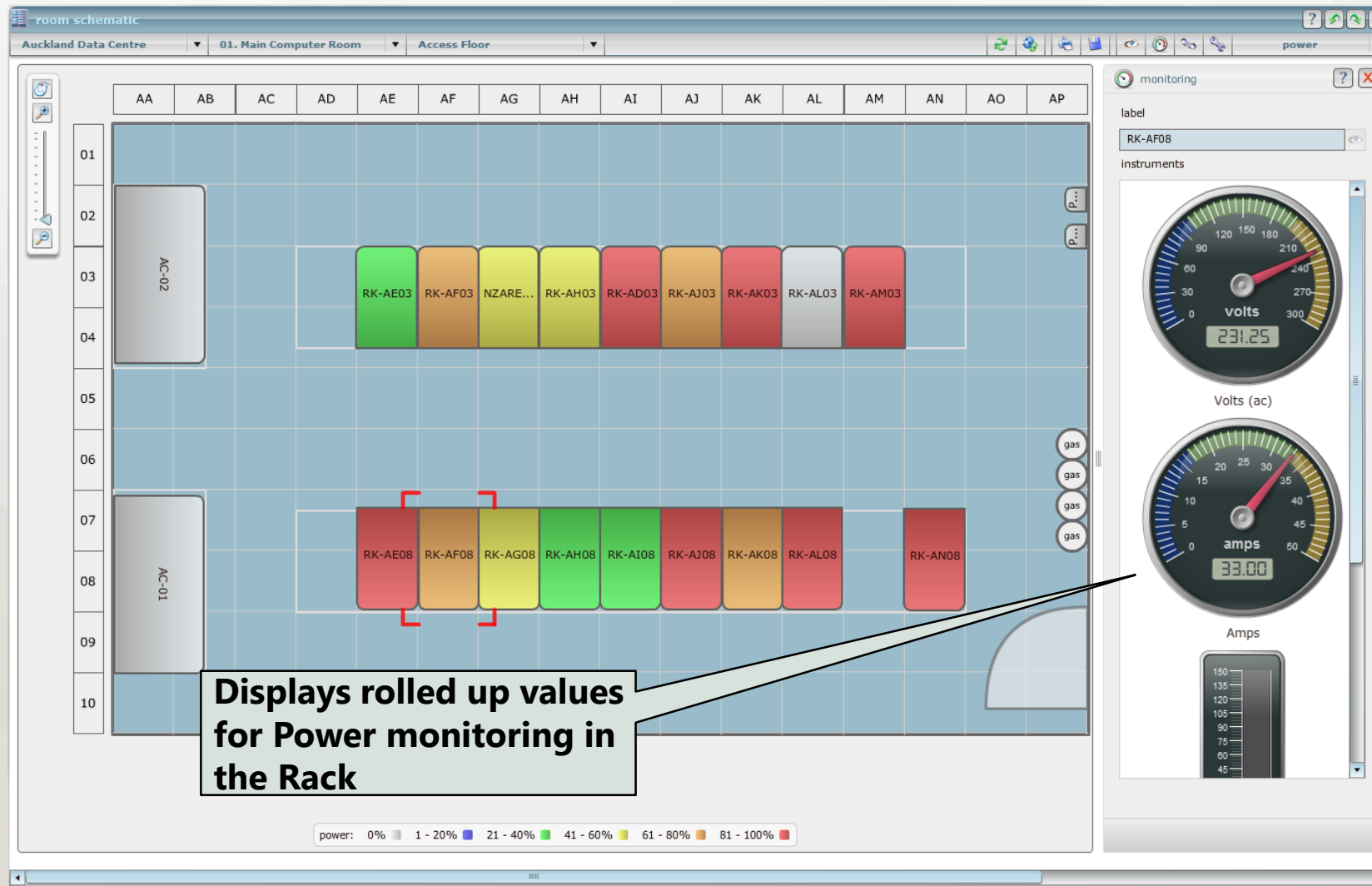
Better management of power resources

Reduction of power costs

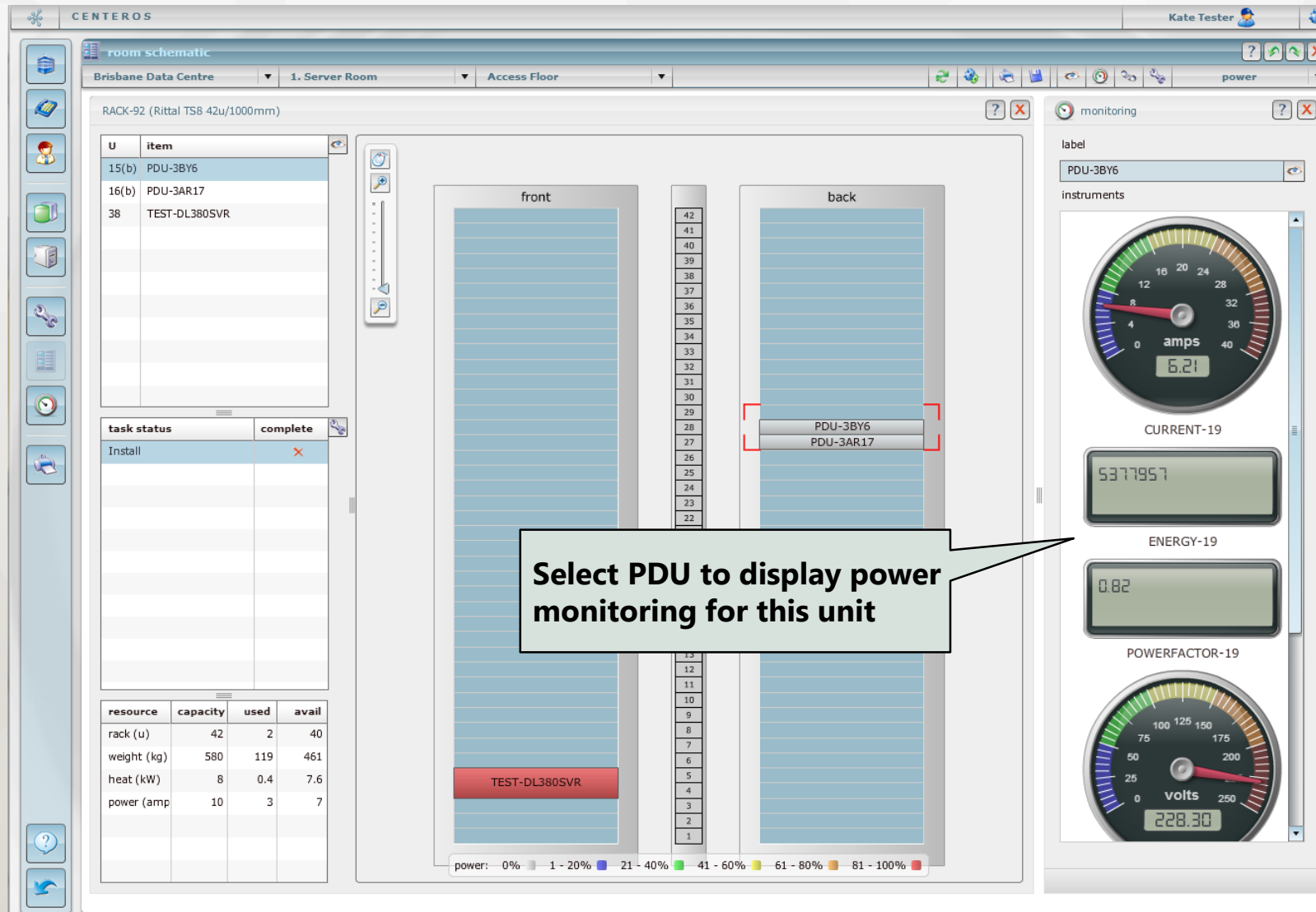
The ability to bill for power



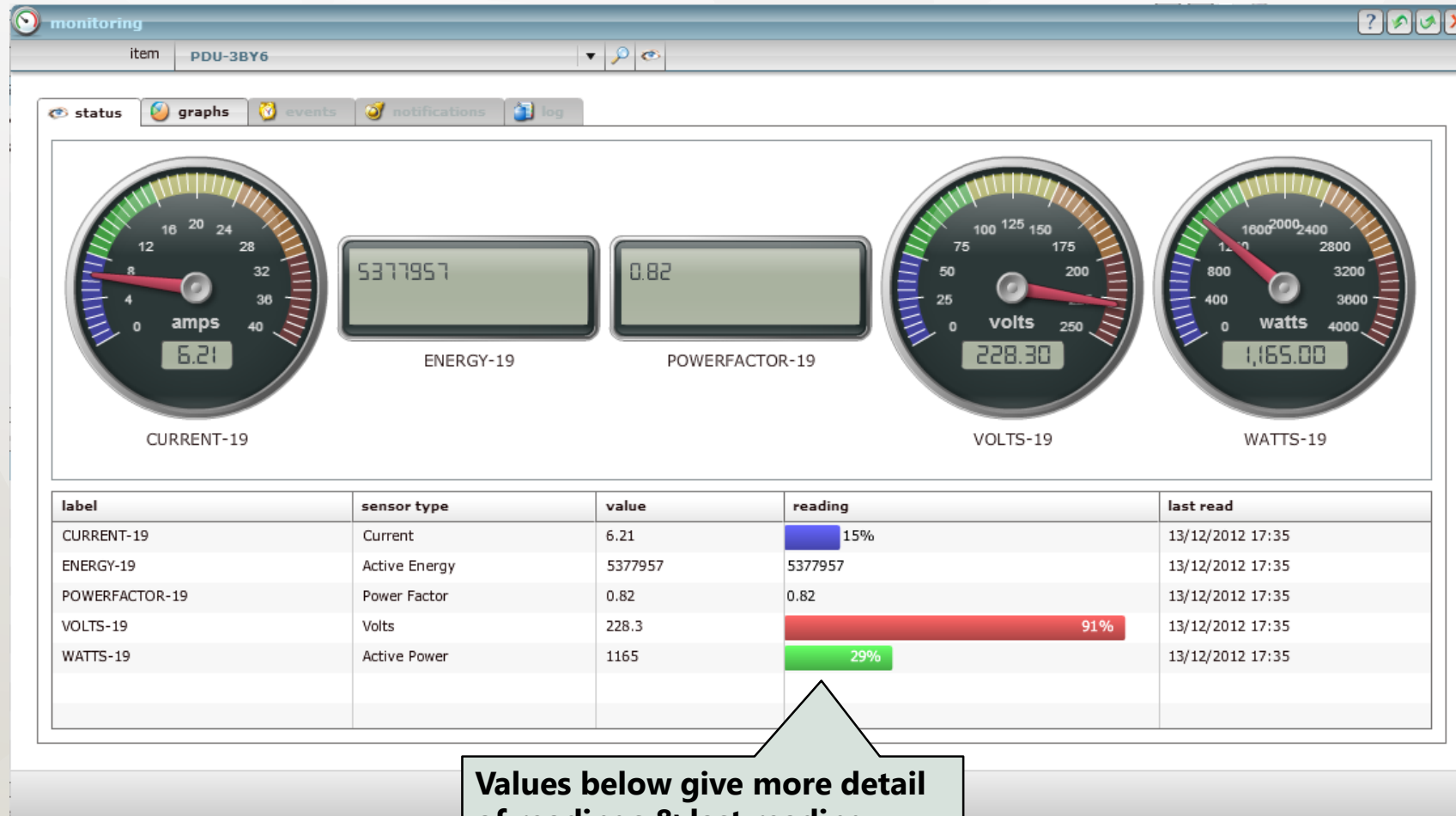
Monitoring – Monitoring Panel by Rack



Monitoring – Monitoring Panel by PDU



Monitoring – Status for a PDU



Values below give more detail
of readings & last reading
dates

Monitoring – Graph Chart for a PDU



Shows a months data
graphed by hourly
readings

Reference Sites

Growing customer base in Australia

Types of business sectors using our DCIM software are:

Banking, insurance, universities, co-location & managed services, hospitals, telecommunications

Below are a selection of some of our customers logos



Summary

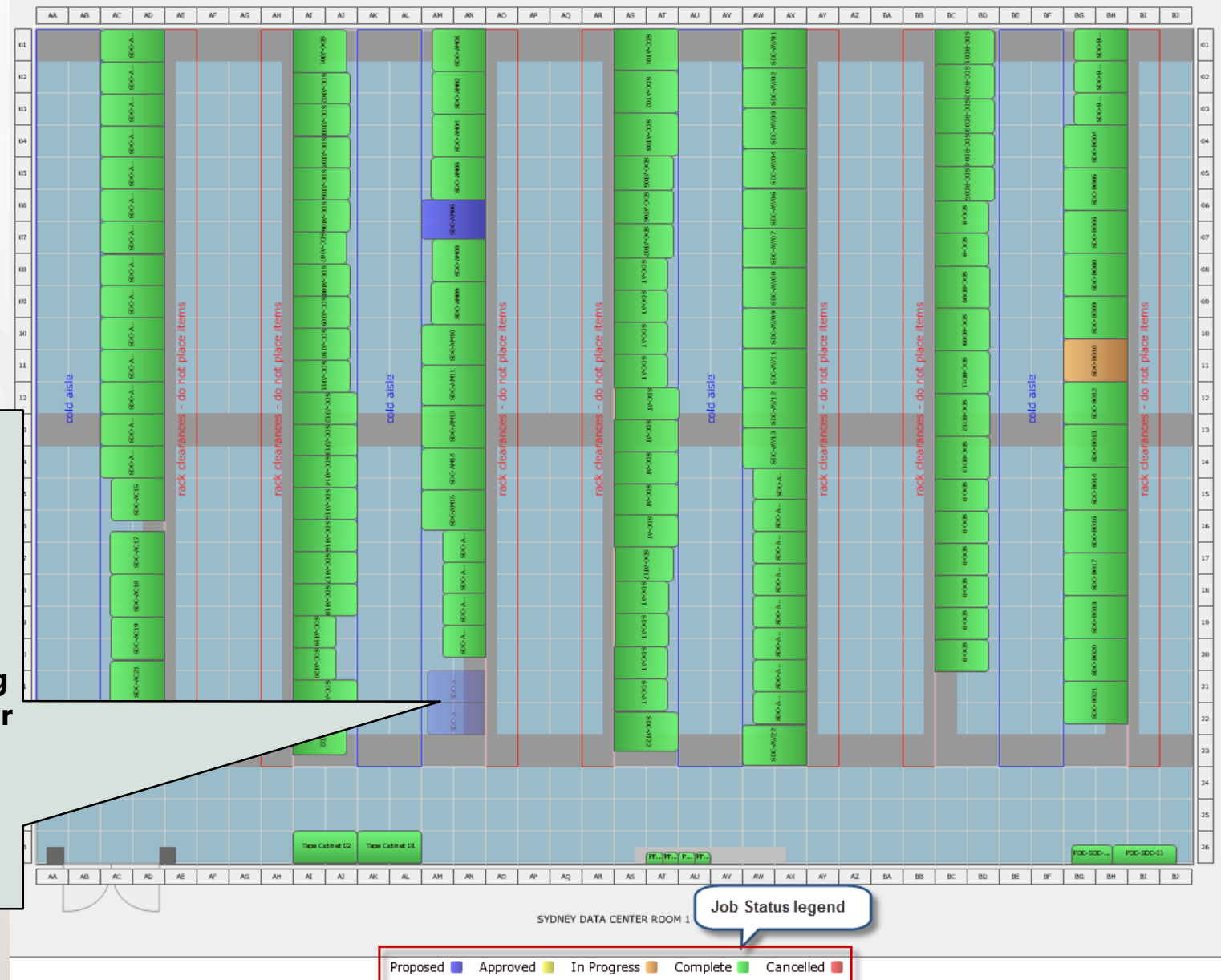
- **Knowing what you have and where it is, is key to the efficient and effective running of a data centre**
- **Understanding current state and available capacity facilitates planning and removes surprises**
- **Data Centre dedicated software development**



Additional Detailed Material

Floor Layer

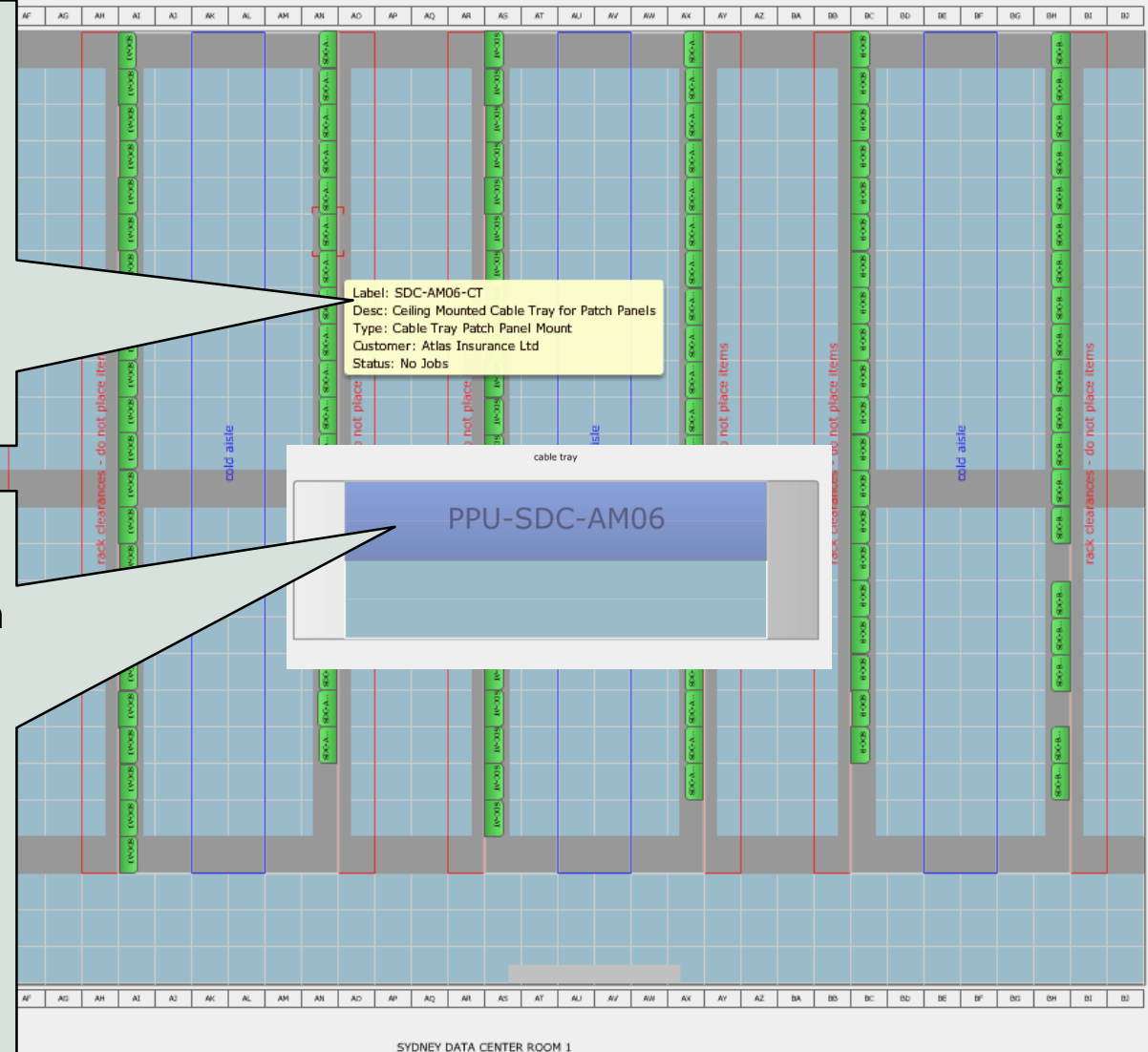
Access Floor Layer:-
 (Because the cold aisles are marked out and the rows are labelled it is easy to see which rack is where.) Job status view allows users to see where work is occurring in the room. (See legend for job status colours.)
 Transparent racks are not physically placed on the floor.



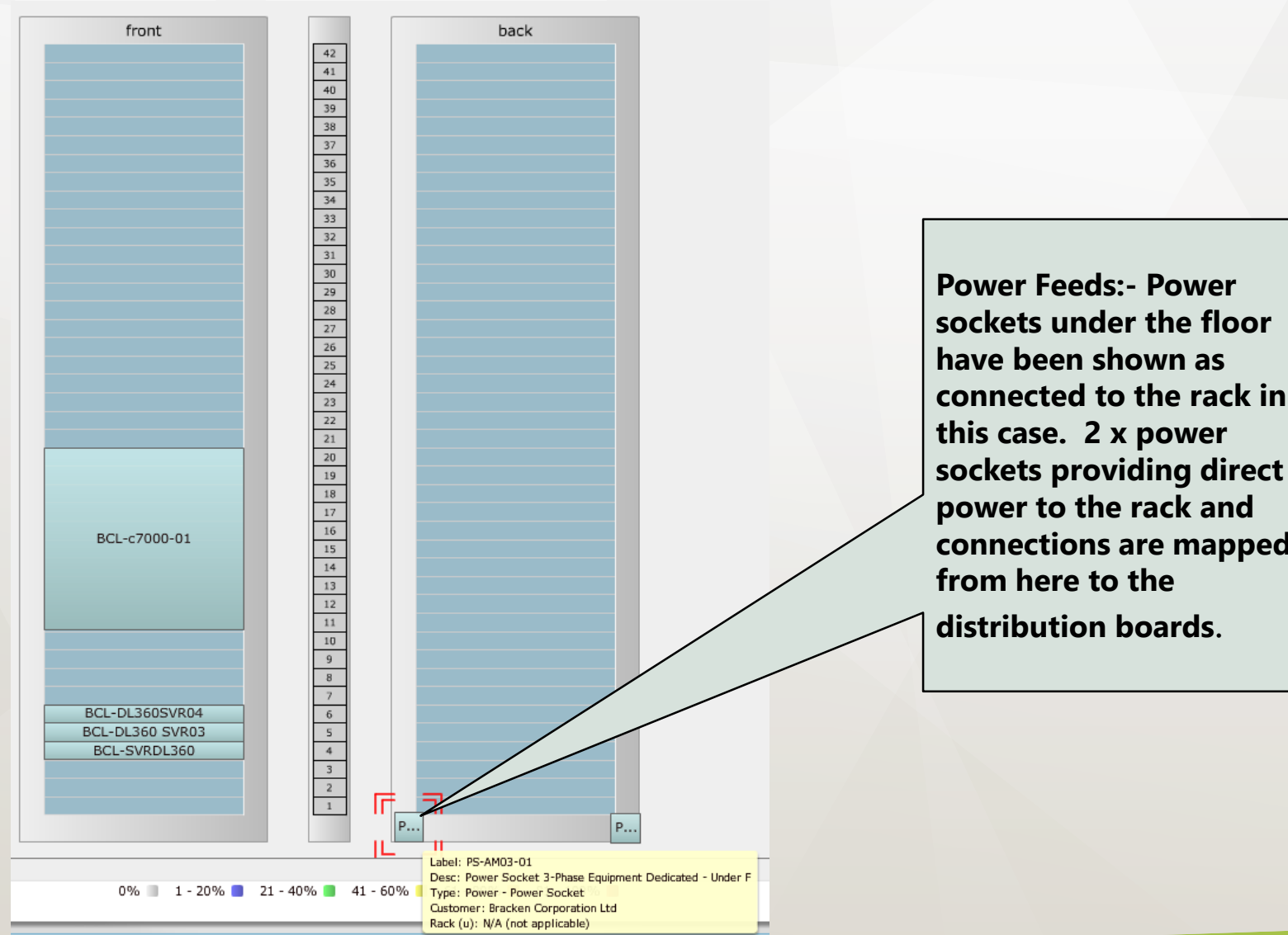
Ceiling Layer

Ceiling Mounted Cable Trays:- The Cable tray path displays in the ceiling layer. This means trays and patch panels in the ceiling can be tracked.

Double click on a tray to show the Patch panel inside. The Patch panel displays the connections that are mapped from here to the equipment in the rack and to the patch modules in the frames.



Link Power Feeds to Racks



Item Detail Tab

items

item PCL-CHCBSVR-02

details

items

properties

resources

sensors

connectors

connections

contacts

notes

jobs

label	PCL-CHCBSVR-02	template	
description	PCL-CHCBSVR-02	type	Blades - Computer Blade
asset number		manufacturer	IBM
serial number		model	E Blade Server
bar code		sla	24 x 7
ip address		monitoring	☐ enabled protocol

customer *

Pumpkin Clothing Ltd

job status

In Progress

data center	Auckland Data Centre	parent	RK-AL08
room	Main Computer Room	child	PCL-CHCBLD-01
		position	2

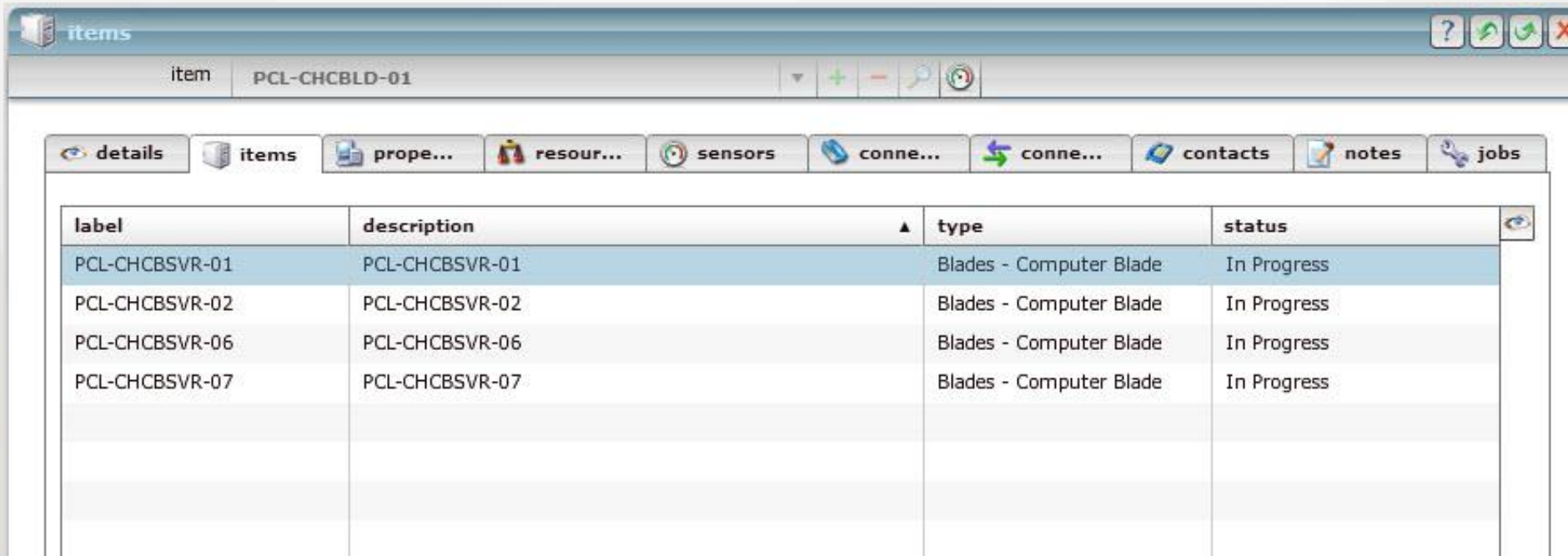
last update 28/07/2013 13:49 by Kate Tester (kate.test@overip.com)

print

reset

save

Items Tab – Hardware example

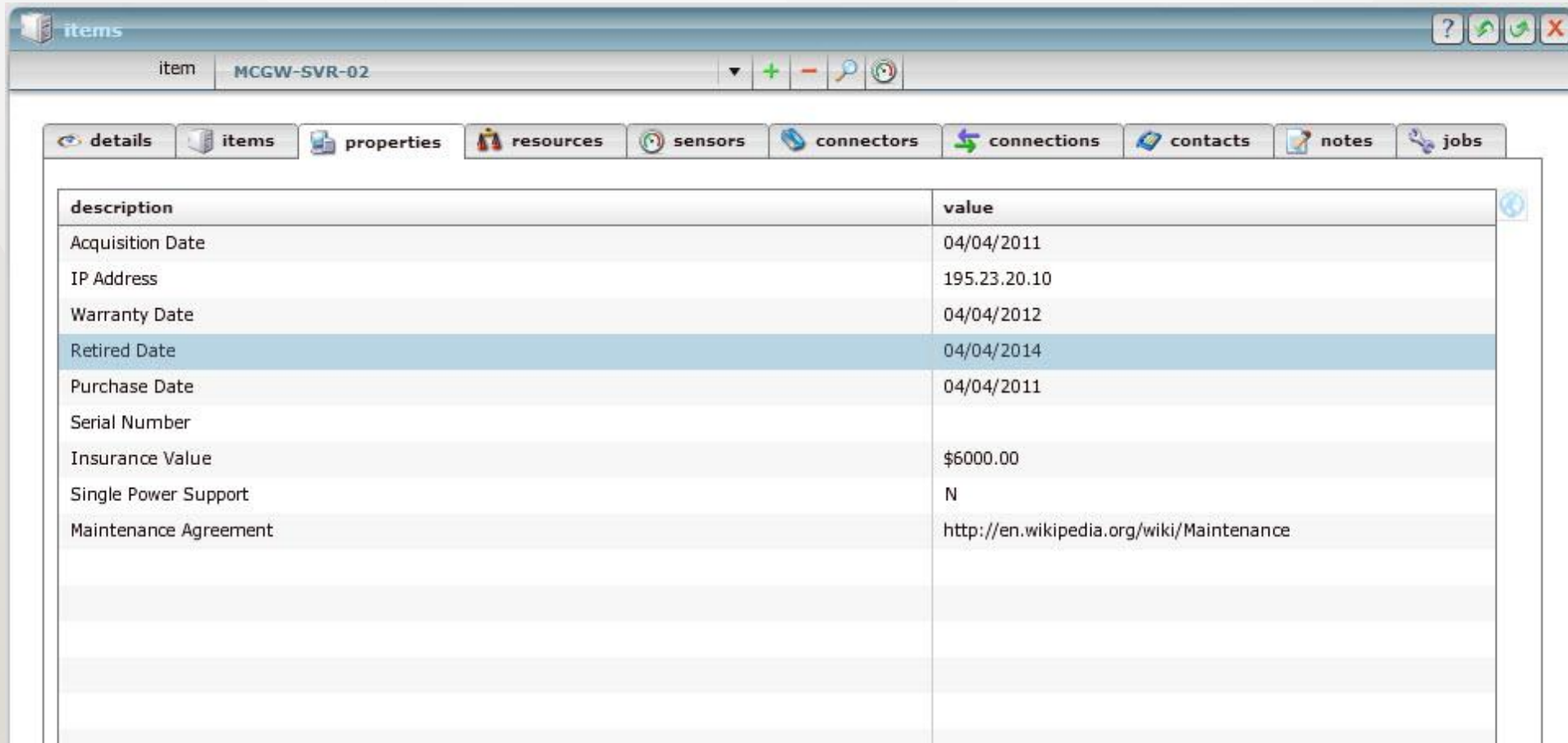


label	description	type	status
PCL-CHCBSVR-01	PCL-CHCBSVR-01	Blades - Computer Blade	In Progress
PCL-CHCBSVR-02	PCL-CHCBSVR-02	Blades - Computer Blade	In Progress
PCL-CHCBSVR-06	PCL-CHCBSVR-06	Blades - Computer Blade	In Progress
PCL-CHCBSVR-07	PCL-CHCBSVR-07	Blades - Computer Blade	In Progress

Items Tab – Software Example

[illegible]

Properties Tab



The screenshot shows a web application window titled 'items'. The address bar displays 'item MCGW-SVR-02'. Below the address bar is a toolbar with icons for adding, deleting, and searching. A tabbed interface is visible, with the 'properties' tab selected. The 'properties' tab contains a table with two columns: 'description' and 'value'. The table lists various attributes of the item, including dates, IP address, warranty, and maintenance agreement. The 'Retired Date' row is highlighted in blue.

description	value
Acquisition Date	04/04/2011
IP Address	195.23.20.10
Warranty Date	04/04/2012
Retired Date	04/04/2014
Purchase Date	04/04/2011
Serial Number	
Insurance Value	\$6000.00
Single Power Support	N
Maintenance Agreement	http://en.wikipedia.org/wiki/Maintenance

Resources Tab

item MCGW-SVR-02

details items properties **resources** sensors connectors connections contacts notes jobs

weight

maximum weight 21 kg minimum weight 21 kg

power

maximum output 0 amps maximum input 2 amps
volts 230 ac dc volts 230 ac dc

heat

maximum output 0.95 kW maximum cooling capacity 0 kW

space

rack units available 0 rack units used 2
blade slots available 0 blade slots used 0
storage slots available 0 storage slots used 0
power slots available 0 power slots used 0

dimensions

width 482.6 mm height 89 mm depth 654 mm

print reset save

Connectors Tab

items

item MCGW-SVR-02

details

items

properties

resources

sensors

connectors

connections

contacts

notes

jobs

label	circuit id	type	connector	capacity	units	faulty	
PWR-A		Power	C13/C14	5	Amps	☐	+ - ↺ ↻
PWR-B		Power	C13/C14	5	Amps	☐	
NIC-01	ETN90228	Network	RJ45	1000	Mb/s	☐	
NIC-02	Telecom 10886	Network	RJ45	1000	Mb/s	☐	

label * PWR-A

connector C13/C14

type Power

capacity 5

☐ faulty

circuit details

circuit id

description

carrier TelstraClear NZ

customer Start typing to search

print

reset

save

Connectors Tab - Network

items

item

MCGW-SVR-02

+

-

details

items

properties

resources

sensors

connectors

connections

contacts

notes

jobs

label	circuit id	type	connector	capacity	units	faulty	
PWR-A		Power	C13/C14	5	Amps	☐	+
PWR-B		Power	C13/C14	5	Amps	☐	-
NIC-01	ETN90228	Network	RJ45	1000	Mb/s	☐	
NIC-02	Telecom 10886	Network	RJ45	1000	Mb/s	☐	

label *

NIC-01

type

Network

connector

RJ45

capacity

1000

faulty

☐

circuit details

circuit id

ETN90228

description

TelstraClear

carrier

TelstraClear NZ

customer

McGuigans Wine Ltd

print

reset

save

Locate facility, rack, equipment and service provider by circuit ID

Connections Tab - Network

items

item MCGW-SVR-02

details

items

properties

resources

sensors

connectors

connections

contacts

notes

jobs

type	connector	status
Power	PWR-A	Proposed
Power	PWR-B	Proposed
Network	NIC-01	Proposed
Network	NIC-02	Proposed

source

item MCGW-SVR-02

type Network

label NIC-01

connector RJ45

connection

label MCGWSVR02-PPUAL0803

color Pink

path TRAYAL08

media UTP - CAT 6

capacity 1000 Mb/s

destination

item PPU-RKAL08-1

type Network

label Port-03

connector RJ45 Panel Socket

print

reset

save

Connections Tab - Power

items

item MCGW-SVR-02

details

items

properties

resources

sensors

connectors

connections

contacts

notes

jobs

type	connector	status
Power	PWR-A	Proposed
Power	PWR-B	Proposed
Network	NIC-01	Proposed
Network	NIC-02	Proposed

source

item MCGW-SVR-02

type Power

label PWR-A

connector C13/C14

connection

label MCGWSVR02-PDURAL08A2

color Red

path TRAYAL08

media Copper

capacity 10 Amps

destination

item PDU-RAL08-A

type Power

label Socket-02

connector C13/C14

print

reset

save

Contacts Tab

items

item MCGW-SVR-02

details items properties resources sensors connectors connections **contacts** notes jobs

role	name	company
Outage Notification	Fraser, John	McGuigans Wine Ltd
Prime Contact	Brown, Barry	McGuigans Wine Ltd

role **Outage Notification**

name phone ext

dept mobile

company fax

email

print reset save

Notes Tab

The screenshot shows a software interface window titled 'items'. The main menu bar includes 'details', 'items', 'properties', 'resources', 'sensors', 'connectors', 'connections', 'contacts', 'notes', and 'jobs'. The 'notes' tab is selected, displaying a table with columns 'date', 'title', and 'author'. The first row contains the data: '14/03/2014 10:34', 'Power issues with Server', and 'Kate Tester'. Below the table, there is a form for editing the note. The 'title' field is labeled 'title *' and contains the text 'Power issues with Server'. The 'details' field is labeled 'details' and contains the text 'Power issues with the server today, sorted out by Jason'. At the bottom right of the form area, it says 'last update 14/03/2014 10:36 by Kate Tester (kate.testner)'. The bottom of the window has a 'print' button on the left and 'reset' and 'save' buttons on the right.

date	title	author
14/03/2014 10:34	Power issues with Server	Kate Tester

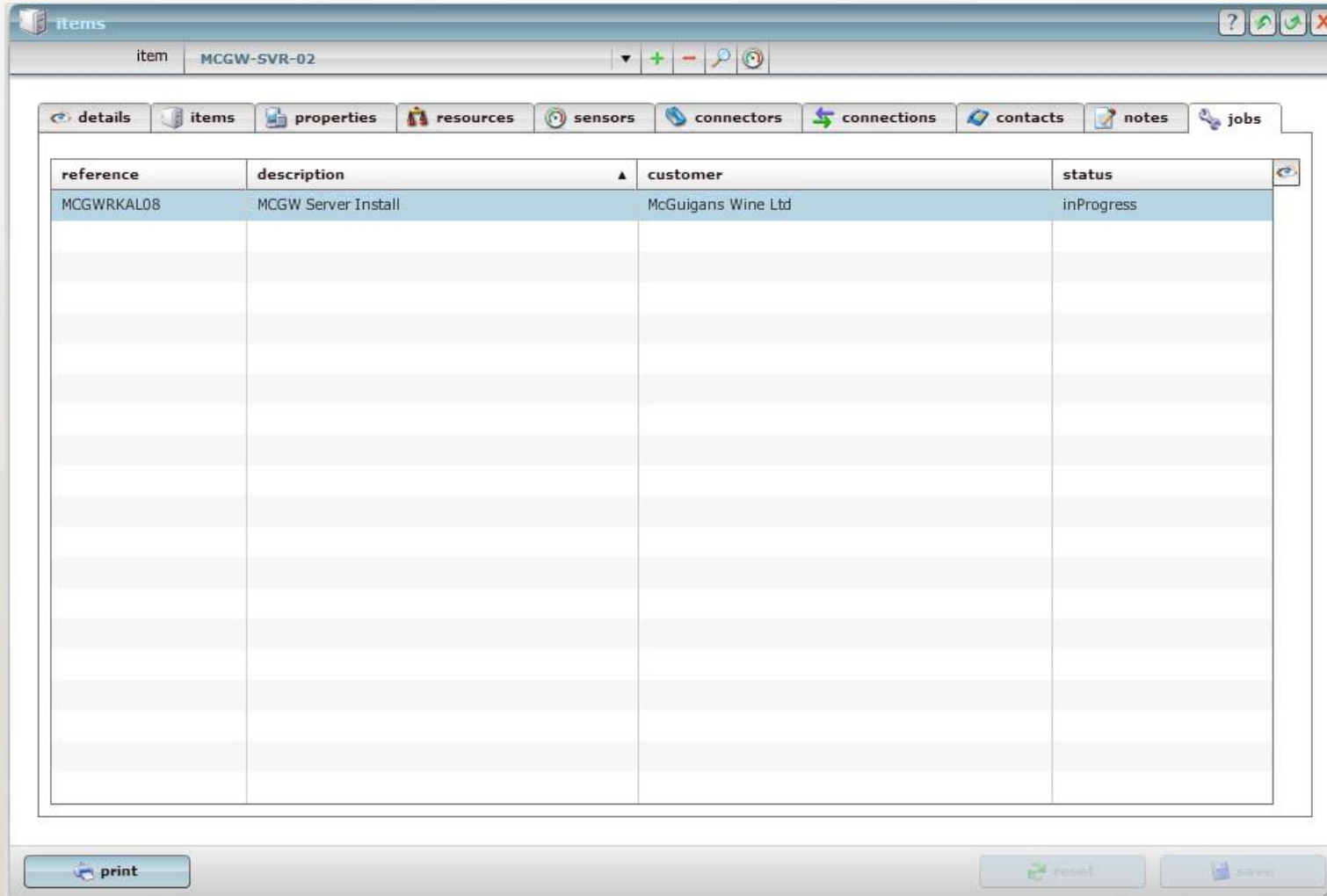
title * Power issues with Server

details Power issues with the server today, sorted out by Jason

last update 14/03/2014 10:36 by Kate Tester (kate.testner)

print reset save

Jobs Tab



Job Details Tab

The screenshot shows a web application window titled 'jobs'. The main header displays 'job MCGWRKAL08' with a dropdown arrow, a plus icon, and a magnifying glass icon. Below the header are four tabs: 'details' (active), 'tasks', 'notes', and 'workflow'. The 'details' tab contains the following fields:

- job number: 10
- reference: MCGWRKAL08
- customer: McGuigans Wine Ltd (with search, add, and eye icons)
- description: MCGW Server Install
- details: MCGW Server Install (in a larger text area)
- center: Auckland Data Centre (with a dropdown arrow)
- date: 03/03/2014 (with a calendar icon)
- status: inProgress (with a dropdown arrow)

At the bottom right of the details section, it says 'last update 14/03/2014 10:39 by Kate Tester (kate.testner)'. The footer of the window contains a 'print' button, a 'reset' button, and a 'save' button.

Job Tasks tab

jobs

job MCGWRKAL08

details

tasks

notes

workflow

task	label	description	U position	complete
Install	MCGWSVR01-PDURAL08B1	TRAYAL08	28(b)	☐
Install	MCGW-SVR-02	MCGW-SVR-02	30(b)	☐
Install	MCGWRTR01-PPUAL0801	Overhead Tray	32(b)	☐
Install	MCGW-FW-01	MCGW-FW-01	33(b)	☐
Install	MCGW-SVR-03	MCGW-SVR-03	37(b)	☐
Connect	MCGWSVR01-PDURAL08B1	TRAYAL08		☐
Connect	MCGWSVR01-PDURAL08A1	TRAYAL08		☐
Connect	MCGWSVR02-PDURAL08A2	TRAYAL08		☐
Connect	MCGWSVR02-PDURAL08B2	TRAYAL08		☐
Connect	MCGWSVR03-PDURAL08A3	TRAYAL08		☐
Connect	MCGWSVR03-PDURAL08B3	TRAYAL08		☐
Connect	MCGWRTR01-PDURAL08A4	TRAYAL08		☐
Connect	MCGWFW01-PDURAL08A5	TRAYAL08		☐

notes

print

reset

save

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**Thank you for taking
the time to read the material**

www.overip.com.au