Singapore Healthcare Management 2024

KK Women's and Children's Hospital
SingHealth

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# Tech Refresh for KKH Telecommunications
## Securing a more sustainable tomorrow

## Introduction

1. The PABX system (comprise servers and gateways) is a call centre system that KKH uses for its inbound and outbound calls and provides real-time and historical reporting features. The system supports 30 internet protocol phones at National Heart Centre Singapore.

2. The system uses large 20 Avaya G650 Gateways, which are cabinets that hold Avaya cards to supports the use of analogue & digital phones as well as the ISDN30 for PSTN calls. The system supports 3350 Direct Inward Dial (DID) extension number.

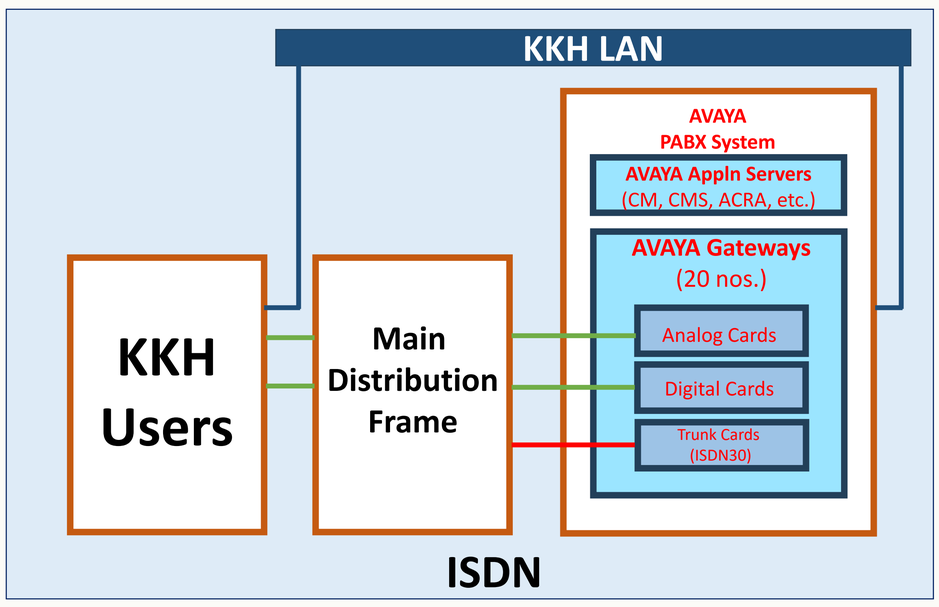
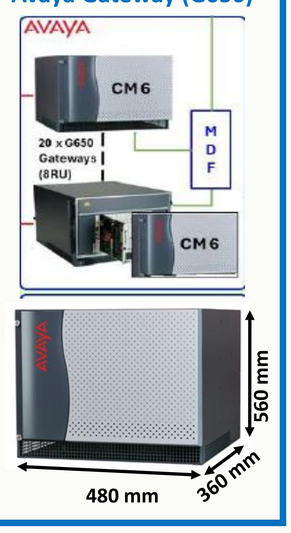



Illustration outlining how the Avaya PABX System connects the hospital telecommunications network

Dimension of existing Avaya Gateway (G650)




## Problem

1. The current Avaya PABX servers have reached end of life and needs to be upgraded to comply with IT security requirements.

2. Existing large 20 gateways (G450) took up more space and consumes more electricity.

## Objectives

The end state in this tech refresh replaces the former larger inventory and system with new provisioned of smaller 20 Avaya G450 Gateways and system comprising servers with reduced electricity consumed.

1. Energy Savings

2. Heat Reduction

## Methodology

Inception → Start → Plan → Execute → Complete

| Determine the drivers | Establish project parameters | Refine project plan | Manage project execution | Archived project information |
|---|---|---|---|---|
| System age | Construct initial project plan | Assess risks | Monitor and control risks | Lessons learned |
| Need to increase resiliency | | | | |
| Reduce electricity cost | | | | |

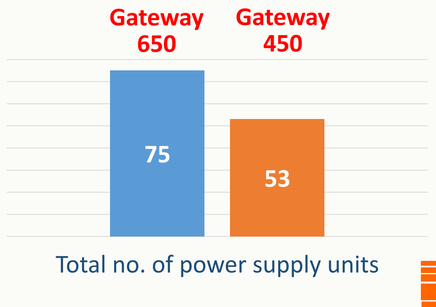
## Energy Saving

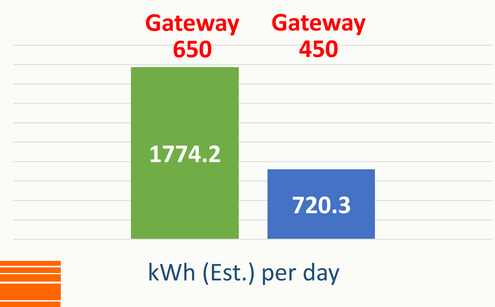
Results

① The CM10 Avaya G450 Gateway uses embedded blade servers that can be used to eliminate the use of external servers. This results in a reduction of 1053.8 kWh (59%) power consumption daily:

- From 15 servers conversion to 05 virtual machine servers.
- Former CM6 Total (kWh (Est.) (per day): 1,774.2kWh per day.
- Tech refresh CM10 Total (kWh (Est.) (per day): 720.3kWh per day.

**Power consumption (kwh) estimated per day between existing Gateway 650 and new Gateway 450**

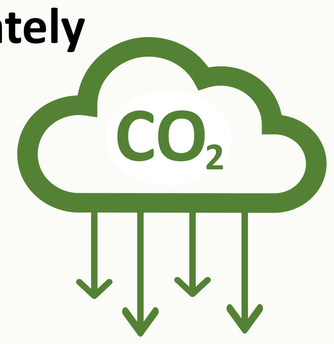



approximately

**59%**

**reduction in daily carbon emissions per day**

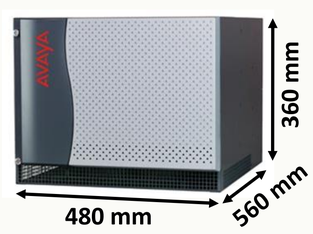



**Reduce carbon footprint and power consumption less than 31% of industry average for products tested**

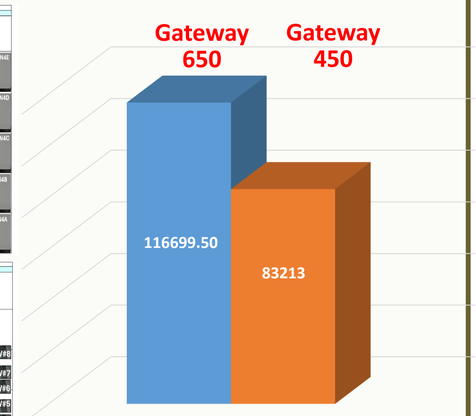
## Heat Reduction

② The more compact G450 Gateway offers significant space savings in the PABX room. This reduces the heat load as well.

Existing old **G650 Gateway**




New **G450 Gateway**


## Conclusion

Tech refresh for KKH Telecommunications PABX system exhibits the hospital sustainable development goals framework towards sustainable practices on environmentally conscientious operations through:

**Determining the drivers towards sustainability on the need for this project**

**Reduces environmental impact of carbon emissions**

**Postulates potential cost savings through electricity savings**