

# DIABETES SINGAPORE CASE STUDY

- ✓ *Diabetes Singapore (DS) upgraded their telephony systems and setup their **nation-wide helpline** using **Crux Labs'** open-source based solution.*
- ✓ *This has **improved collaboration** between all its centres and enabled the much needed ability to access channel partners. It has also made it **easy for patients** to make use of DS offering.*
- ✓ *There is **benefit in DS spend** through perpetual monthly cost savings, with a payback period of less than a year, at a fraction of cost of other commercial solutions*

**February 2018**

# About – Diabetes Singapore (DS)



## DS is a non-profit organization

- Affiliated to the International Diabetes Federation and the National Council of Social Service

## DS Mission

- Provide diabetes awareness, education, counselling and support to people with diabetes, their family members and the public, which helps empower them to become better equipped to achieve a healthy and productive life.

## DS Objectives

- Provide service to people with diabetes and others interested in diabetes
- Undertake activities that promote the general well-being of people with diabetes or tending towards diabetes
- Strive to remove prejudice and ignorance concerning diabetes.

## DS Locations

- 3 Branches & 1 Mobile van unit in Singapore

# DS – Problem Statement



## Business Challenges

### Voluntary Welfare Organization (VWO) Challenges

- Lack of resources and distribution capability
- Lack of common platform for patients to access services seamlessly across Singapore
- Lack of common infrastructure to connect patients with partner channels to provide comprehensive offerings

### Multiple locations = Multiple businesses

- Lack of synergy and sharing of benefits between multiple locations of DS
- IT is not geared for cross-location collaboration

### Impact of a missing nationwide helpline

- Lack of a converged single telephone system denies synergy benefits
- No single national/country-wide phone number connecting patients to all DS locations
- Preventing access/ reach/ scalability highway via partner channels

## Technology Constraints

### Archaic Technology

- 8 PSTN (analogue) lines & 1 mobile number across 3 branches and 1 mobile van
- 6 phone lines that clients can call that ring at different locations
- Individually numbered phone lines difficult to advertise and remember
- No voicemail or auto attendant/IVR (Interactive Voice Response)
- No intelligence to prompt callers about office hours
- Calls between branches require external calls
- Calls within branches is non-existent

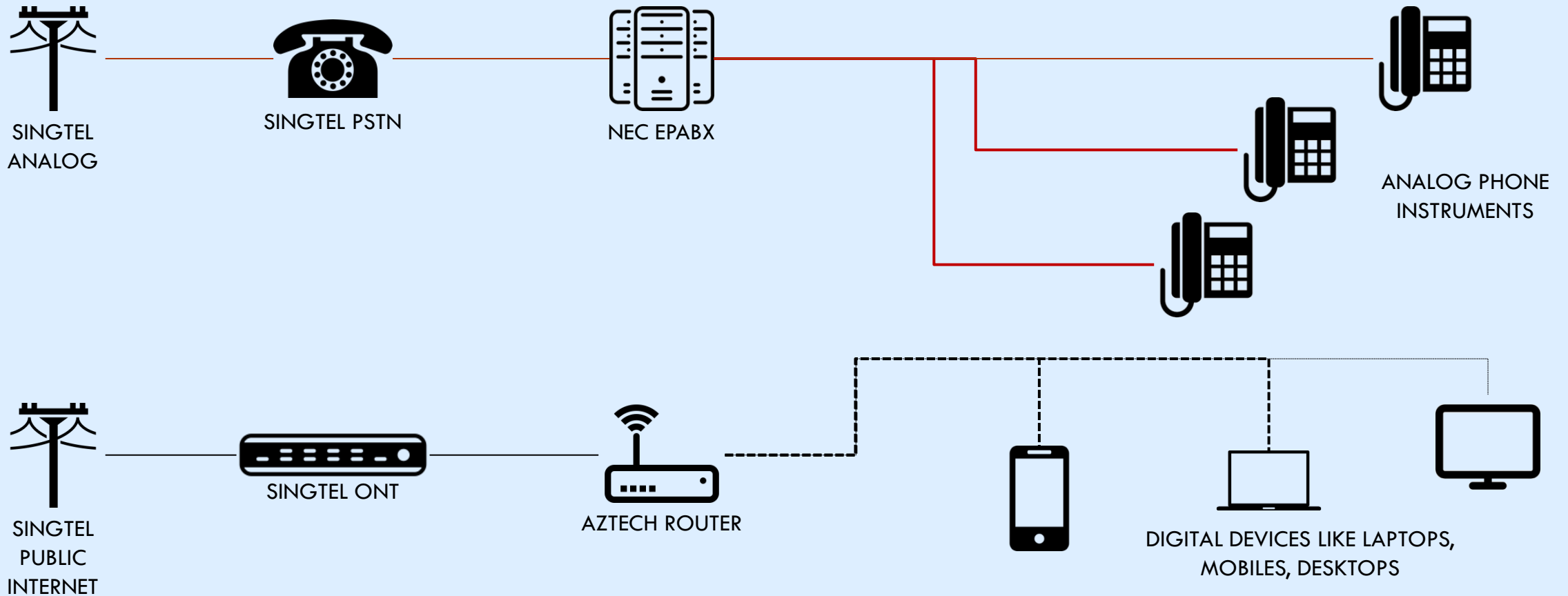
**No statistics on call volumes or responsiveness of staff to incoming calls or missed calls**

**Due to lack of common number, inability to place events and activities in national level channels and portals**

**Cost of running existing solution = \$150 per month**



# Previous Solution



**Fig 1 – Per Branch Setup**

Isolation between Digital (WiFi/Internet) and Analog (PSTN) technologies

**LEGEND**

- ANALOG
- DIGITAL



# Isolated Branches

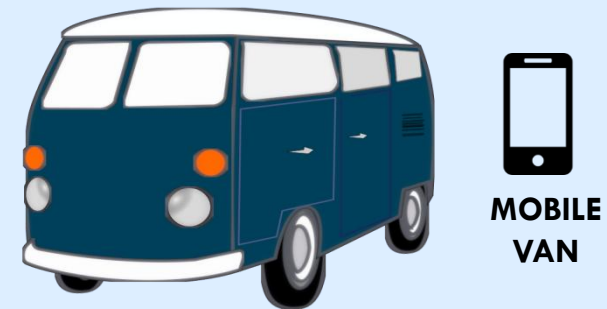
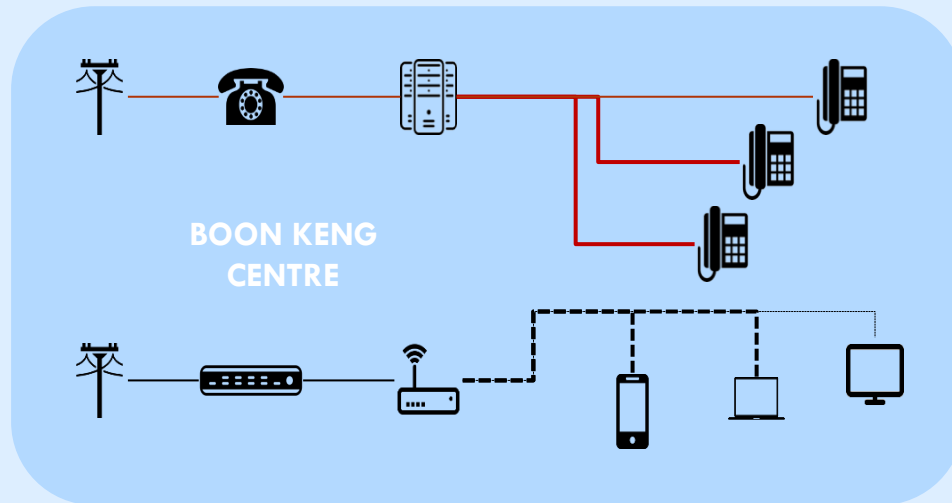
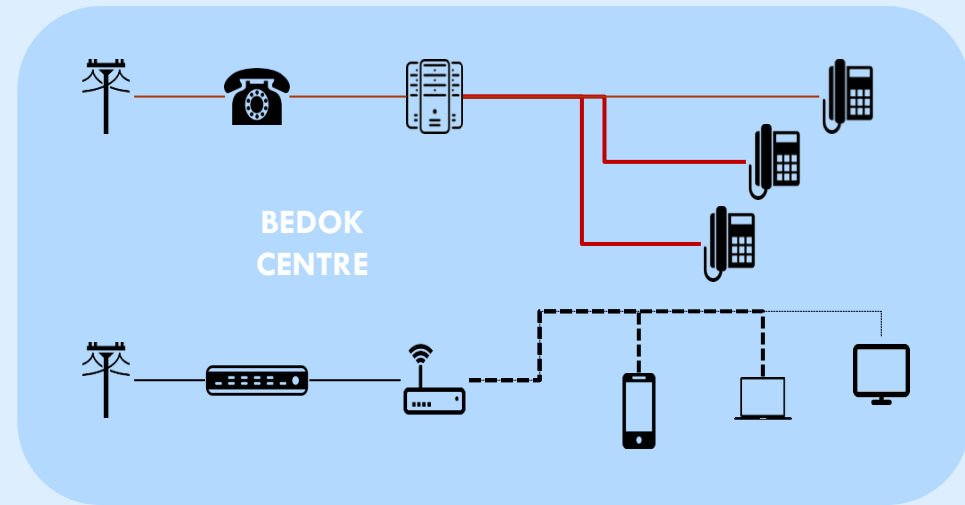
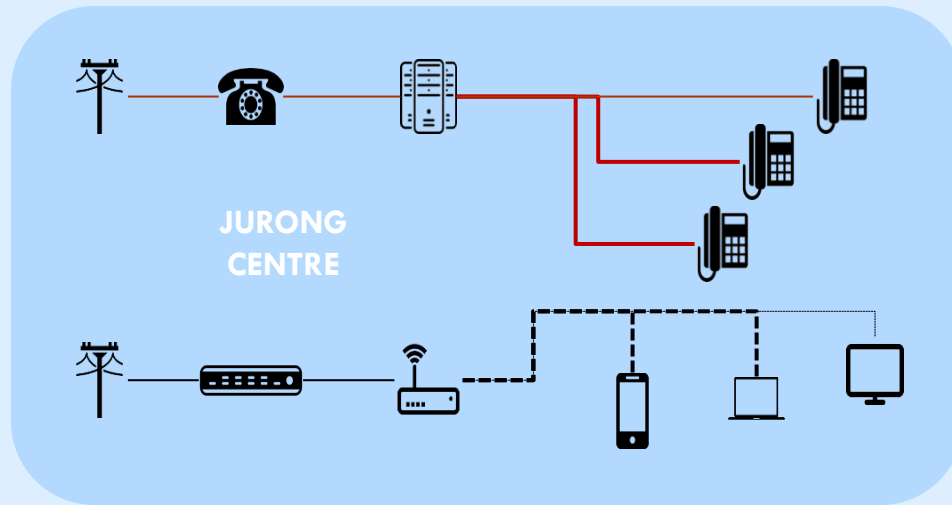


Fig 2 – DS Overall

Fragmented infrastructure in each branch preventing collaboration and synergies



# Upgrade Challenges

**\$7,000**

AVERAGE COST OF ENTERPRISE SOLUTION

**\$\$++**

FOR ADD-ON CALL MANAGEMENT SERVICES

**30**

DAYS INSTALLATION TIME OR MORE



**HIGH**

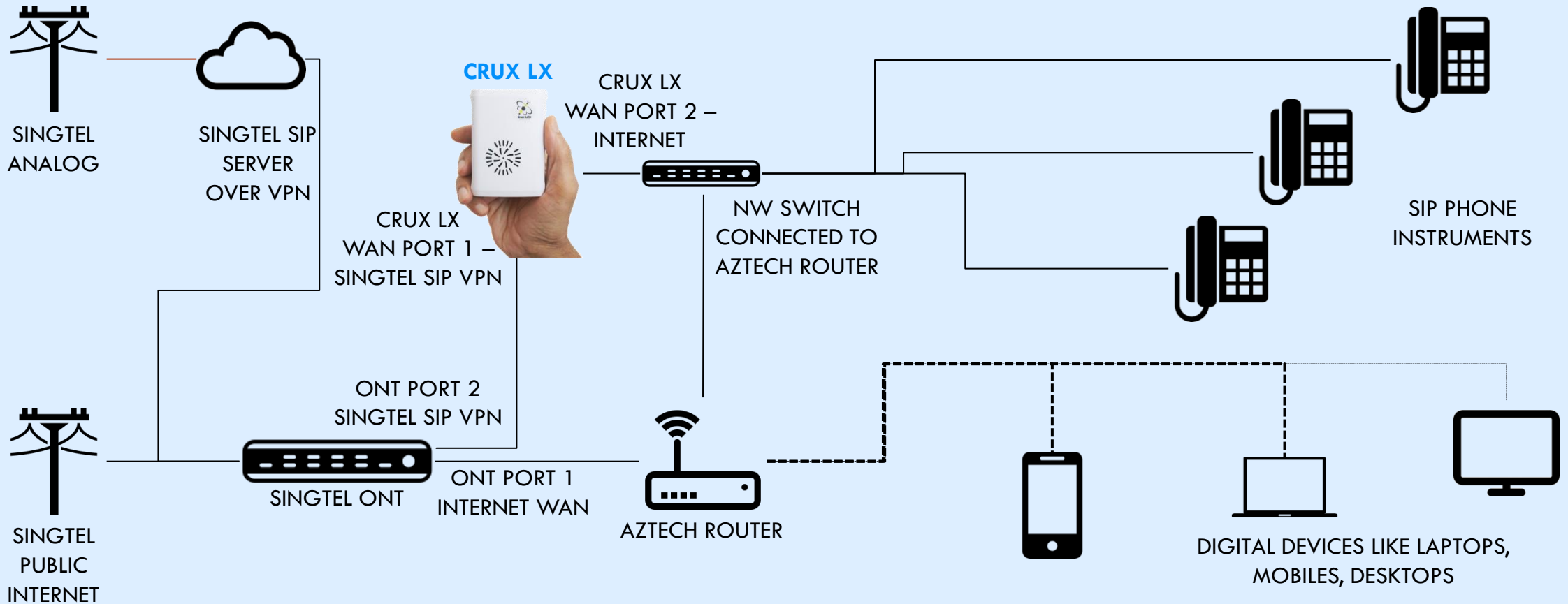
SKILLS & MAINTENANCE

*Vendors unsure of delivering multi-location solution*





# Crux LX Solution



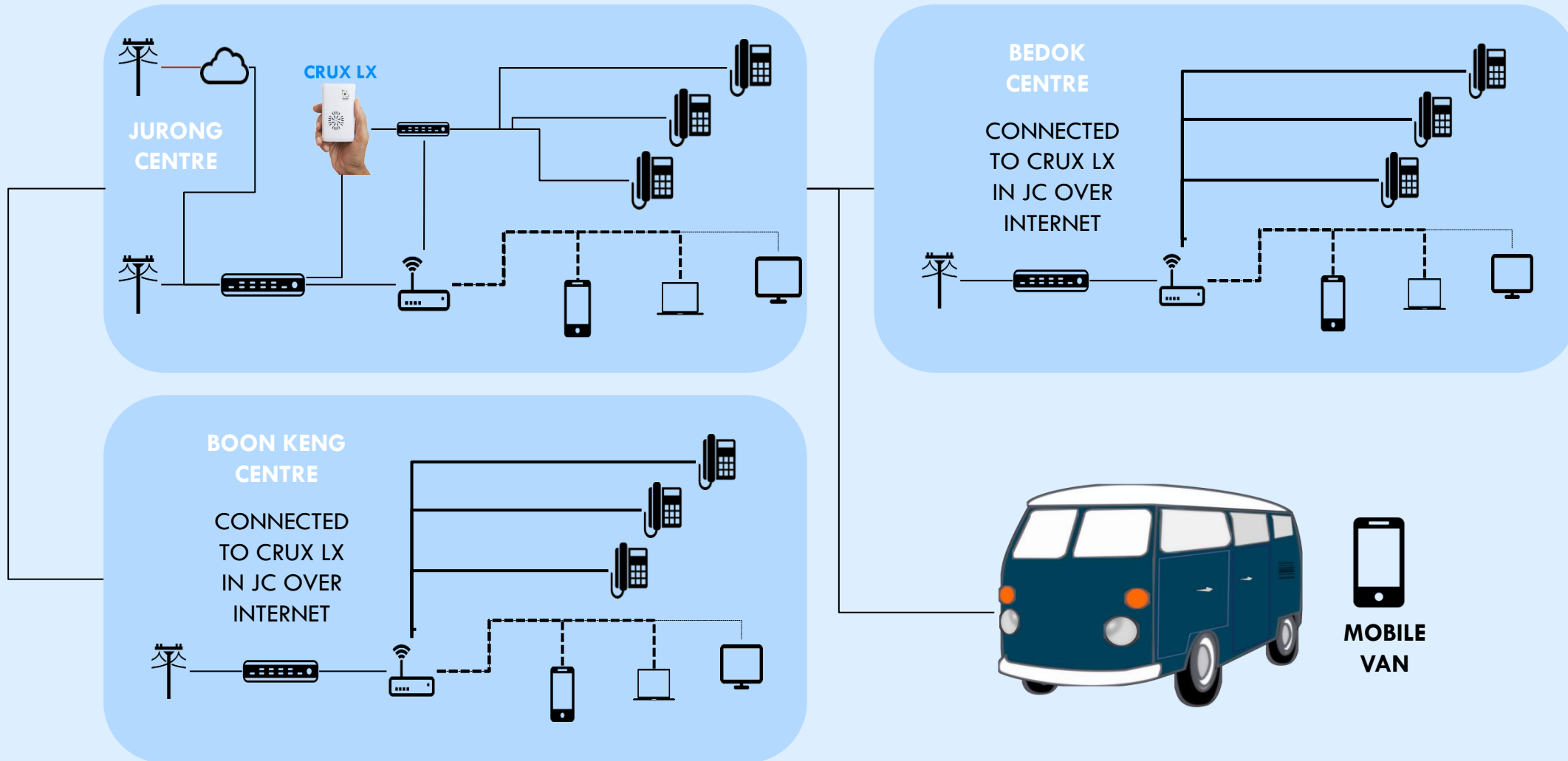
**Fig 3 – Jurong Centre Branch Setup (with Crux LX)**  
Fully Digital (WiFi/Internet/Telephony) technologies

**LEGEND**

- ANALOG
- DIGITAL



# Integrated Branches



**Fig 4 – Overall DS Setup (with Crux LX)**

All centres and mobile van connected to Crux LX at Jurong Centre, allowing unified call distribution and management





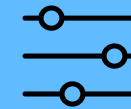
## Solution Benefits



SINGLE NUMBER AS  
NATIONAL HELPLINE TO  
REACH ANY CENTRE

**\$0**

COST OF SOLUTION  
OFFSET BY SAVINGS IN  
LESS THAN A YEAR



AUTO ATTENDANT / IVR,  
VOICEMAIL, REMOTE  
EXTENSIONS, ETC.

**LOW**

SKILLS & MAINTENANCE  
NEEDED



**HIGH**

COLLABORATION &  
PRODUCTIVITY FEATURES



# Solution BoM

- Pre-existing equipment removed
  - NEC EPABX (Analog)
  
- Pre-existing equipment used
  - Singtel ONT (Additional WAN port enabled for MegaPOP – SIP VPN connectivity)
  - Aztech Router from Singtel (DSL8800 GR-S) (Port forwarding to Crux LX)
  
- New equipment added
  - 1x Crux LX with dual-WAN and intrusion protection (v1.0) ~\$999
  - 11x Grandstream dual-port PoE-ready SIP instruments (GXP 1615) ~\$100 x 11
  - 2x D-Link 8-port Gigabit Network Switches (DGS 108) ~\$37 x 2

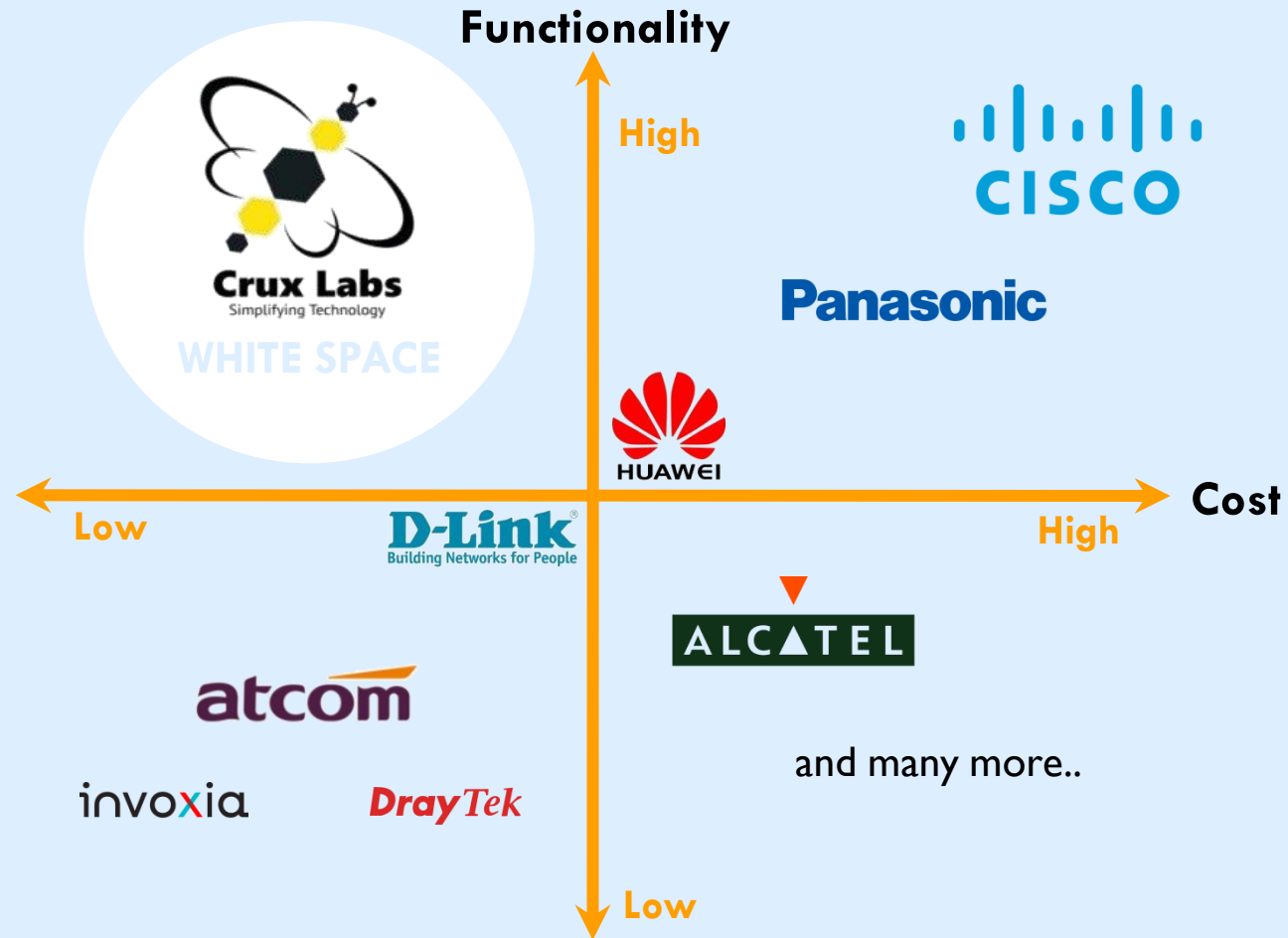


# Technology Comparison

	TDM PBX	IP PBX	Crux LX	PBX on Cloud
IVR (Auto Attendant)	x	✓\$	✓	✓\$
Conference Call	x	✓\$	✓	✓\$
Call Detail Records	x	✓\$	✓	✓\$
Voicemail	x	✓\$	✓	✓\$
Call Recording	x	✓\$	✓	✓\$
Skills for Maintenance	Needed	Needed	Self Service	Self Service
Time to Deploy	Few days	Days – Weeks	Ready to use	Ready to use
Smart Device Features	x	x	✓	x
Individual Customization	x	x	✓	x
Total Cost of Acquisition (TCA)	> \$2000	> \$5000	\$999	> \$15 /user /month
Cost of Cabling & Installation	> \$1000	> \$2000	x	x
Extensions	Fixed	Fixed	Flexible	Fixed
Communication Device	Instrument	Instrument / Softphone	Instrument / Softphone	Instrument / Softphone



# Competition





# About Crux LX



## What is Crux LX

- Wireless Router
- Virtual Telephone Exchange
  - ✓ Connects up to 250 users
- Built-in Call Management System
  - ✓ Call Forwarding
  - ✓ Automated Call Assistant
  - ✓ Conference Calls

## Unique Selling Point (USP)

- Wireless
- No cables needed
- Enterprise Features
- Portable
- Configurable
- Low Cost

# About Crux Labs

## About Us

Crux Labs is focused on building IT products using open source software and hardware components that simplify technology, in an innovative yet cost-effective way, resulting in solutions that are quick to deploy and self-serviced by users

## Scorecard

<b>Incorporated</b>	Jan 31, 2017
<b>UEN</b>	201702696H
<b>Beta Trials</b>	Jul – Sep 2017
<b>Deployments</b>	20+
<b>Clients</b>	15+
<b>Countries</b>	Singapore, India, UAE, and Canada
<b>Highlights</b>	Successfully funded on <b>KICKSTARTER</b>
“Best Idea” award won by MBA externs at NTU Singapore	

## Client Testimonial



**Ramesh Datla**  
Managing Director, Elico Ltd.

*As wireless technologies are catching up in every walk of life, with everyone carrying a mobile device, Crux Labs has demonstrated a cost effective solution which makes it easy for SMBs to setup a communication system without any infrastructure and people costs.*



## Team – Crux Labs



Rohit Gupta – Founder

- 20 years in business and technology roles at IBM, HP & Wipro and 2 profitable start-ups
- Start-up Mentor at Startup BootCamp, AIRmaker, PlatformE & INSEAD
- Expertise: Software Product R&D, Partnerships, Technical Sales, Marketing
- Alumnus: MIT Sloan (EPGM '15) and MJP Rohilkhand (B. Tech. Comp Sc '98)

## Board of Advisors



Amit Goel – Advisor  
(Sr. Manager, QualComm)



Zarina L. Stanford – Advisor  
(Head of Marketing, SAP APJ)



Davis C. George – Advisor  
(Ex-Director of Strategy, NetApp)



James Spurway – Advisor  
(Angel Investor)



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thank you!