Deployable Support for Return to Campus

CenturyLink Smart Solutions

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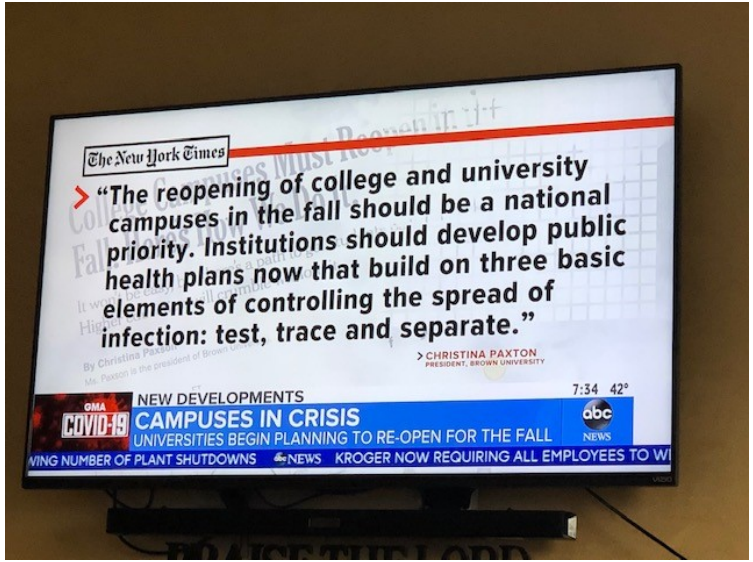
Returning to campus requires rapid technology integration

Universities must demonstrate readiness to reopen

- Instill Confidence to Faculty, Staff, Students and Parents
- Provide benchmarks reporting to Department of Health
- Enable real-time monitoring and response
- Be scalable and universal for athletics, housing, common spaces, etc.
- Develop economic models that rationalize expense as permanent infrastructure and not wasted reactive spend



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CenturyLink Smart Campus Tools for COVID19

Deployable solutions for COVID-19 Campus reopening

1 Street, Surface & Indoor LED Lighting

Manage different lighting solutions to reduce energy and maintenance costs.

2 Smart Buildings & Classrooms

Monitor and manage connectivity, security, digital signage, interactive classroom devices and building management systems.

3 Venue Technology

Improve fan experience through connected venue technologies.

4 Safety & Security

Automatically detect security incidents, shorten response time and analyze data to reduce crime and ensure a healthy campus.

5 Location Aware Mobile Applications

Provide view of people flow and density data to health monitoring and tracking

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Digital Business Solutions Portfolio

Edge Compute/Smart Campus

Adaptive Networking

We can deliver the connectivity you need when you need it and where you need it – across the country, around the world or down the street.

Connected Security

Proactively protect the data flowing over your network with highly distributed, global, next-generation security solutions that are closest to the point of attack.

Agile IT

No matter what cloud options you use, future proof your environment with seamless integration and management tools that maximize performance and flexibility.

Managed Services & Professional Services

Answer IT complexity with proven experience and comprehensive managed services designed to simplify, automate and accelerate your business.

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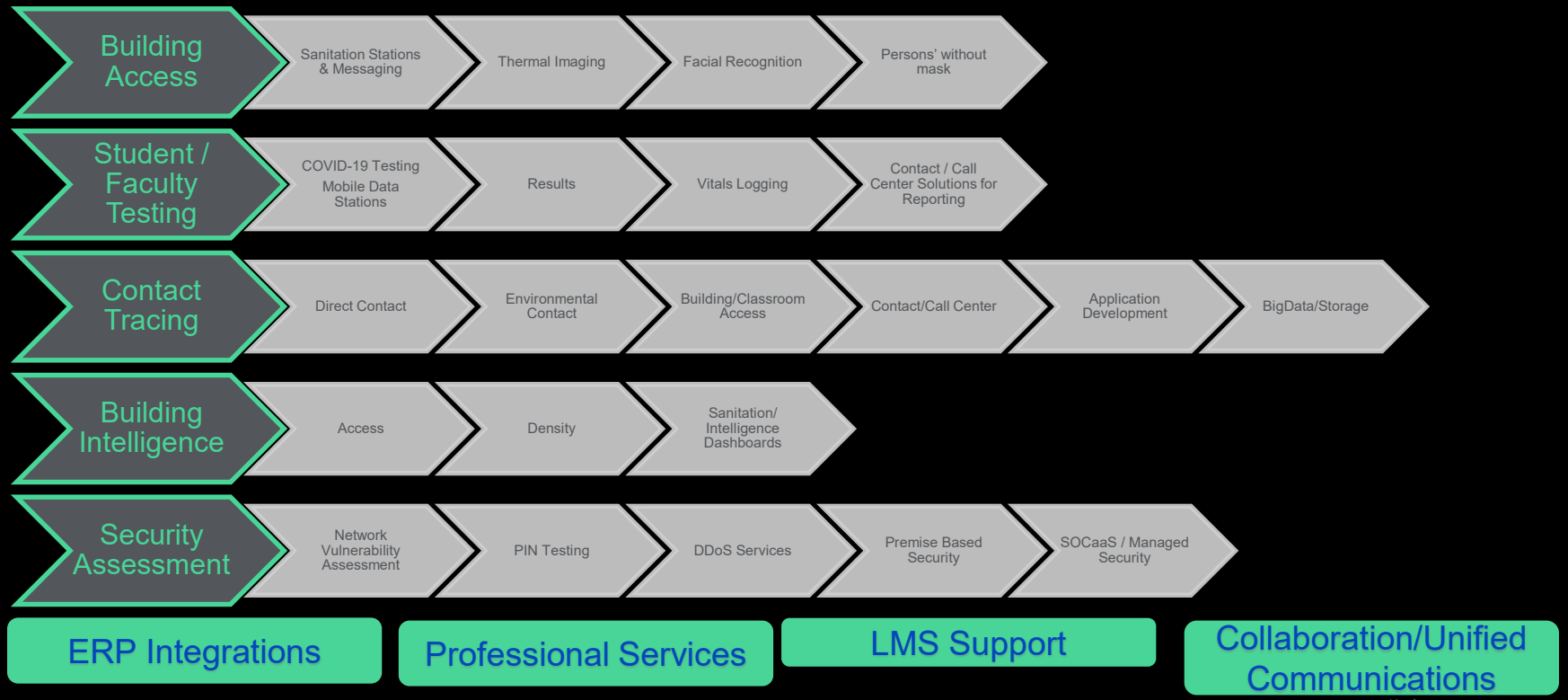
Solution Scenarios – Smart Campus



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Solution Scenario -

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One Campus Mission

Leveraging Smart Campus Solutions to Enabling Return to Campus Learning Environment

Solutions that managing the flow of Guests and Employees through Temperature Testing via Connected Temperature Stations and an associated data platform

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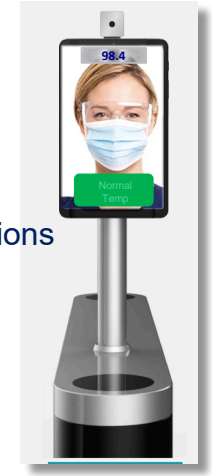
Solution Options

Thermal Imaging Station

- Temporal IR scan kiosks at entrances
- High accuracy(+-.3%) thermal imaging stations
- Notification and escalation engine
- Anonymous Facial Recognition
- Reports
- Low Cost
- 2-3ft range



Thermal Imaging Lane

- Temporal IR scan kiosks at entrances
- High accuracy(+-.3%) thermal imaging stations inclusive of Samsung SOC Screen
- Notification and escalation engine
- Reports
- Midrange Cost
- 9ft range
- Customer Portal for Reports and Notification and escalation engine

Thermal Imaging High Capacity Lane

- Temporal scan kiosks at entrances
- Up to 20ft Distance with continual movement through Camera Area high traffic volume for large venues
- High accuracy(+- .1%) thermal imaging stations
- Digital displays for notification Integrated with Samsung MagicInfo CMS.
- Utilize Samsung SOC (Tizen)
- Customer Portal for Reports and Notification and escalation engine

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Solution Architecture

Thermal Cameras

Camera/Media player/Screen Software for thermal imaging. +/- .1%

Beacon for App Capture

Ability to integrate with custom apps loaded on the cell phone

Translators to API

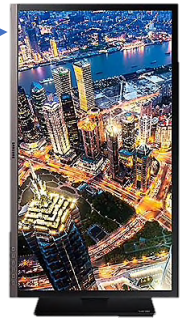
Data platform

App Interface

Ability to interface outbound to mobile applications

Global Portal

Portal will be on the web and will give global access… password protected. Key triggers will alarm and allow for next action steps. Records of all key data points will be recorded for future report capabilities. Notifications can be sent to the Administrator



Samsung Screen

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Frequently Asked Questions

Where does the processing occur?
ANSWER: The image processing and notifications development occur locally on the server. For the “Lane’s”, meta-data is transferred from the local server to the cloud or other local storage location for future analytical reporting.

How much data is transferred to the cloud and how much storage is needed?
ANSWER: Assuming 1000 entries per day, roughly 300mb of data is transmitted. Central server specs would include:
4 Core CPU, 16GB RAM, 2 x 1TB Hard drives configured as RAID1 by the OS. Size would be scaled based on the number of lanes in use.

Can facial recognition be added to identify employees/students?
ANSWER: The solution is capable of supporting facial recognition but is disabled in the base solution. Adding facial recognition would be a custom option.

Can the solution detect PPE/masks?
ANSWER: The solution is capable of supporting additional analytics but is disabled in the base solution.

Is the threshold configurable?
ANSWER: Yes, the threshold can be configured during initial configuration.

Are there any HIPPA or employee privacy concerns?
ANSWER: The outlined solution does not include facial recognition or integration to any other identity solutions, but these are custom options. As such, the data is not able to be correlated to an individual and would not be subject to HIPPA regulations.

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Related Solutions – Building & Access Control

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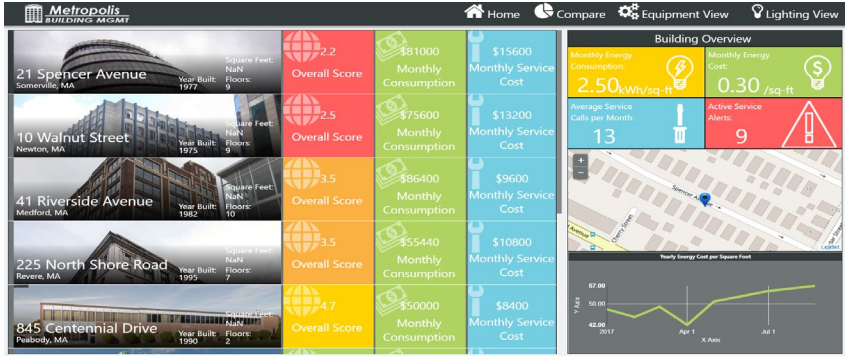
Multi-Building Dashboards

Dashboards can be configured for all data being tracked for health and safety

List (with sortable columns):

Building Name

- Scored building performance
- Location
- Cost of Energy Consumption
- Number of Service Alerts
- Year over year Performance Trend



Health & Wellness Tracking Repurpose

- Cleaning Schedules
- Density
- Tracking and Reporting of student and faculty movement
- Vendor and Visitor Access Control
- Thermal Imaging Betas

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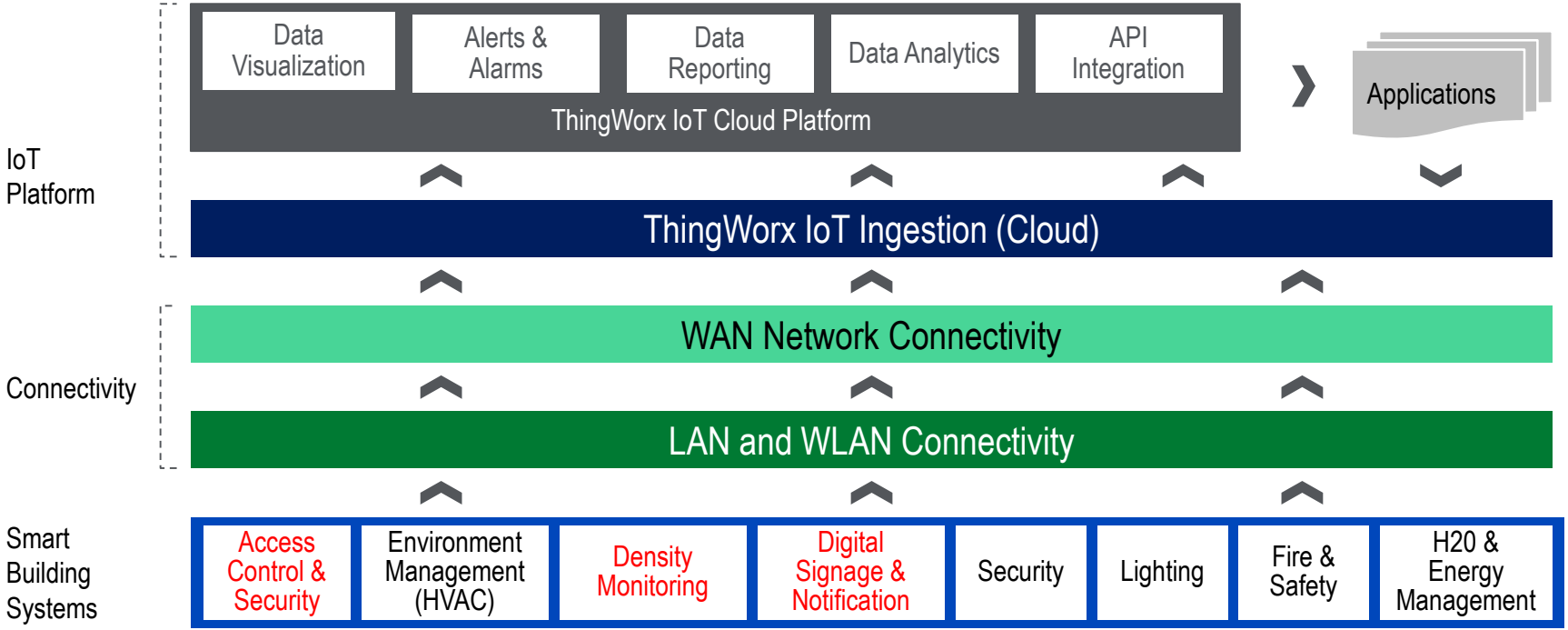
CenturyLink Standard Smart Solutions Architecture

Deployable solutions for COVID-19 Campus reopening



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Thank You!

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Appendix

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CenturyLink Smart Solutions Overview

WHAT IS A SMART SOLUTION?

- A Smart Solution creates an unique End to End experience for a guest/ fan/citizen.
- A Smart Solution is a consulting driven project that combines our Core Network, Wireless Connectivity, Smart Devices, Applications, and data analytics.

CUSTOMER BENEFITS OF A SMART SOLUTION

- Drive unique customer experiences
- Increase revenue
- Improve operational efficiency
- Gain insights through analysis of collected data
- Evaluate and react to situations in real-time

CenturyLink Delivers

- Strategy and Design Consulting
- Program Management Services
- Application Development Services
- Data Analytics
- Hosting and Network Services
- Wireless Connectivity
- Smart Devices
- Implementation Services
- Post Install Support Services

CenturyLink Smart Solutions Key Vertical Offers

- Smart Venue
- Smart Campus
- Smart Multi-use Development

On the roadmap:

- Smart Retail
- Smart Manufacturing
- Smart Healthcare

CENTURYLINK SMART SOLUTIONS

Designed, Deployed and Managed by CenturyLink:

- CenturyLink IT Services Consulting
- Core Network Services
- Other CenturyLink Products
- Partner Ecosystem Capabilities

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CenturyLink Smart Venue Vertical Overview

What is the focus of the Smart Venue offer?

- A Smart Venue leverages technology to create an unique End to End fan experience.
- Smart Venue projects are consulting driven efforts that combine CTL Core Network, Wireless Connectivity, Applications, and data analytics

Smart Venue Solution Components

- Local Area Networking
- Patron WIFI
- IP Telephony
- IPTV Solutions and Content Creation
- Social and Mobility Solutions
- Public Safety / Security
- Parking / Lighting / Video

Types of Projects

Large

- New Venue Build (NFL/NHL/NBA/MLB)

Medium

- New Venue Build (MLS, NCAA)
- Single Technology Upgrades

Small

- LAN and Wireless Deploy/Upgrades
- Youth Sports Venue Build

CURRENT AND PREVIOUS PROJECTS

- ➔ Texas Rangers
- ➔ Red Wings (Little Caesars Arena)
- ➔ Seattle Seahawks
- ➔ Vikings (US Bank Stadium and Practice Facility
- ➔ Churchill Downs

CURRENT FOCUS AREAS

- ➔ Pro Sports
- ➔ Universities
- ➔ MLS Franchises & Stadiums
- ➔ Youth sports complexes

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CenturyLink Smart Campus Overview

What is the focus of the Smart Campus offer?

- A Smart Campus leverages technology to improve the experience and educational outcomes of students
- Smart Campus projects reduce costs or increase efficiencies in service delivery.

Smart Campus Solution Components

- Smart Lighting (Surface and Internal)
- Video Security with Analytics
- Parking
- Wireless Connectivity (Wi-Fi, LPWAN, DAS)
- Social and Mobility Solutions
- Kiosks and other interactive signage
- Unified building control systems

Types of Projects

Large

- Wireless Upgrade or Management
- Video Security Upgrade/Consolidation
- Smart Lighting Deployment

Medium

- IoT Network and Single Use Case

Small

- IoT Strategy/Design or Pilot Deploy

TARGET MARKETS

- ➔ New Campus Building Construction
- ➔ Major Technology projects on existing campuses

CURRENT AND PREVIOUS PROJECTS

- ➔ Northern Arizona University
- ➔ Arizona State University

KEY DIFFERENTIATORS

- ➔ Ability to bundle a wide range of capabilities
- ➔ Scale and volume purchasing
- ➔ Vendor Agnostic

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CenturyLink Smart Building Vertical

What is the focus of the Smart Building offer?

- A Building includes properties which included residential, commercial, retail, venues and hospitality.
- These projects can leverage technology to improve the experience of residents/tenants and to reduce costs or increase efficiencies in service delivery.

Smart Building Solution Components

- Smart Lighting (Surface and Internal)
- Video Security with Analytics
- Parking
- Wireless Connectivity (Wi-Fi, LPWAN, DAS)
- Social and Mobility Solutions
- Kiosks and other interactive signage
- Unified building control systems

Types of Projects

Large

- New Build – Multiple Use Cases

Medium

- IoT Network and Single Use Case

Small

- IoT Strategy/Design or Pilot Deploy

TARGET MARKETS

- ➔ New Development Construction

CURRENT AND PREVIOUS PROJECTS

- ➔ Chatham Park, NC
- ➔ Babcock Ranch, FL

CURRENT PROJECTS

- ➔ Orlando SED
- ➔ Denver World Trade Center
- ➔ Jacksonville Shipyards and District
- ➔ City of Raleigh (w/ Chatham)
- ➔ Viking Lakes

KEY DIFFERENTIATORS

- ➔ Ability to integrate all technologies across the project
- ➔ Volume purchasing power
- ➔ Vendor Agnostic

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Why CenturyLink

CenturyLink empowers universities with custom-fit solutions to navigate, plan, and implement their long-term digital transformation goals.

We're backed by:

- Proven, secure infrastructure
- Comprehensive network-driven solutions

Constituents expect real-time digital services.
Is your network ready for digital transformation?

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Public sector portfolio and experience

- We proudly serve thousands of government & R&E customers from state and local government to educational entities to Federal DOD & civilian.
- 4.7 million fiber mile intercity network expansion making it the #1 largest ultra low-loss fiber network in North America
- 120+ DDoS attacks mitigated per day
- 100K+ managed VMs in the cloud

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R&E Focus on Our Customers: Your Success is Our Success

Dedicated to serving Research & Higher Education and University Medical and Community

The Research & Education Strategic Solutions and Account Management Team

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- Justin Catto – Account Manager
- Tina Kerr - Sr. Sales Engineer
- Don Smaltz – Sr. Sales Engineer
- Dave Lovelace- Strategic Services
- Kevin Conway– Smart IOT Sales Engineer
- Mark Murrell- Specialized Sales Solutions
- James Lemond-Architect Cyber Security Engineer
- Rolando Perez-CPE Strategic Development
- Sharon Montgomery – Customer Support Manager
- Lynn Vangorder – Customer Care Manager II (Service Delivery Coordinator)
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