



# 2022 Q2 Mid-Point Update

Global All-Hands  
May 5, 2022



# Agenda

News - Robert  
Product Roadmaps - PMs  
Market Insights - Duke  
Quality Topic - Ishpreet  
Q&A

# What's Happening at Enconnex?

## News



### New hires

Eileen - Operations - Reno

Leanna - Operations - Reno

### Big Wins!

16 DevShield RF cabinets for Sauce Labs  
200 more cabinets for Novva  
50 Custom welded cabinets for Paypal China



### Congratulations!

Reniel Vivo - Promoted to  
Operations Specialist

### Heads Up!

Memorial Day - USA - May 30  
Dragon Boat Festival - China - June 3-5



# PM and Engineering

# Power - Roadmap

AC6000 next generation (no change from March)

- New battery selected for better safety factor and supply chain
- New controller design for much more features and space for future updates
- Expandable design for AC9000 and for longer run battery
- Estimated Availability - Q3 2022
- Outsourcing some portions of the design to speed up the development

TAA PDU (**UPDATE**)

- 3 models sent to CSA for UL testing
- 10 models being developed to cover the wide range of North American circuits
- General availability **Q3 2022**

Custom UPDU (no change from March)

- For Ali in China - specification being reviewed by the customer
- 33xC19 and different pin configuration on the 7-pin universal connector
- Not expected for general release or use due to the customization

# Real Device Testing - Roadmap

Fandoor for standard cabinets (no change from April)

- V5 to integrate the power cutoff switch into the door
- Estimated availability Q3 2022

DevShield 5G (no change from April)

- Covers up to 40 GHz (Ka band)
- Available for sale now

DevShield Mini (no change from April)

- 6U standard (Marking launch in next week with DevShield product line)
- All other sizes are customizable with MOQ of 5

DefenseShield Wall-Mount (no change from April)

- 7U usable space
- Small footprint, perfect for protect distributed systems in office environments
- Under development Estimated availability Q2 2022, MKT launch next week with DevShield product

New Customized iPad Shelf (no change from April)

- Fits 32 iPad Pro, 2 Mac Minis and 2 USB hubs
- Integrated USB hub brackets
- Under design verification process

# Connectivity - Roadmap

## Copper and Fibers local sourcing

- In process of qualifying alternate local CM
  - Improved lead time for both copper and fiber
  - Improved copper pricing, Fiber prices slightly higher

## Fiber Cassette Alternate Supplier Qualification

- To address quality issues observed since Q4'21
- Received 2rd/final round samples, pending customer functional testing
- Evaluating Reno fiber cassette assessment/test capability

## Transceivers

- Evaluating Reno transceiver switch code validation capability
  - Working with factories on h/w and s/w support plan

# Metal - Roadmap

## Standard Cabinet Upgrade (Updated)

- 78% open hexagonal perforation for doors
- Grommet and Brush kit (General Available end of Q3)
- Innovation on Cable (bundle) support (General Available end of Q3)
- Mounting Rail upgrade (Project Plan ongoing)
  - Easy for cable finger mounting
  - Easy for air seal gasket mounting
  - Easy fastened and infinitely adjustment

## Containment (No Update)

- Swing door Generally available in Q2 2022
- Automatic door with access system target launch Q3 2022
- More Extrusion for containment frame and panel frame in Q4 2022



# EdgeRack - Roadmap

## EdgeRack 5M (NO UPDATE)

- New replacement design for EdgeRack 5M with optimized design and better supply chain.
- 3D design of Cooling is done, qualified prototype will be ready on end of July.
- Already start the cabinet design, plan to finish 3D model on mid of May.
- Estimated marketing launch Q3 2022.

## EdgeRack 3P (NO UPDATE)

- New GUI updation completed while continue verifying
- General availability Q4 2021
- Update the user manual.

## EdgeRack Industrial 7kW (UPDATE)

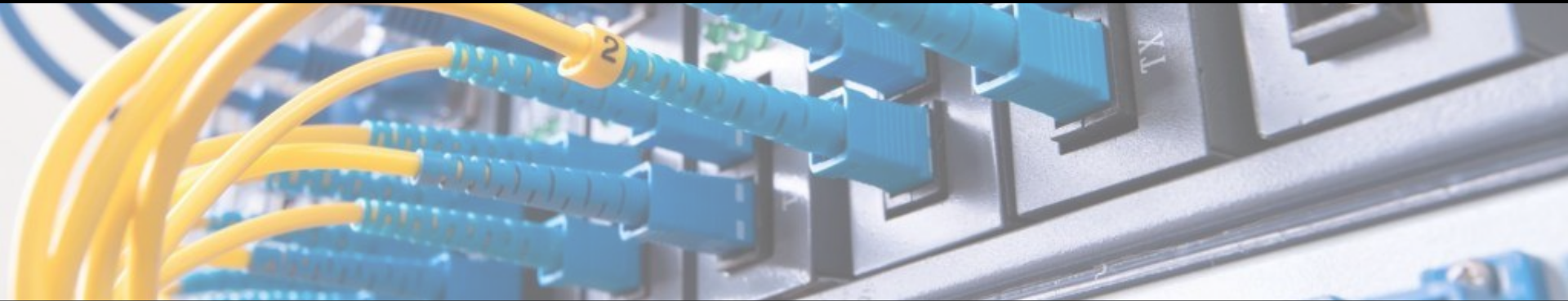
- New platform, 900mm x 45U Cabinet, 7kW all-in-one Cooling, NEMA 12 / IP54
- Cooling unit prototype and controller test is done, performance test will be done mid-May.
- Cabinet prototype is done on end of April, plan to take the unit test in June.
- Preparing the documents for marketing launch.
- Estimated marketing launch mid-July.



# Market Insights

## The Importance of Cable Management

By Duke Robertson  
May 5, 2022



# Overview

Our everyday environments are increasingly becoming more and more wireless. Online access is expected, even assumed; anytime, anywhere. However, what many don't realize is that every email, text, video call, social media post, payment transaction, etc. ultimately comes down to a cable connection in a data center somewhere in the world. And, without cables connecting the various aspects of a data center, many of the conveniences we enjoy in our daily lives would not be possible. This is why good cable management is so important to data center operations.

You might be wondering, what's the big deal? Plugging cables in doesn't seem too difficult.

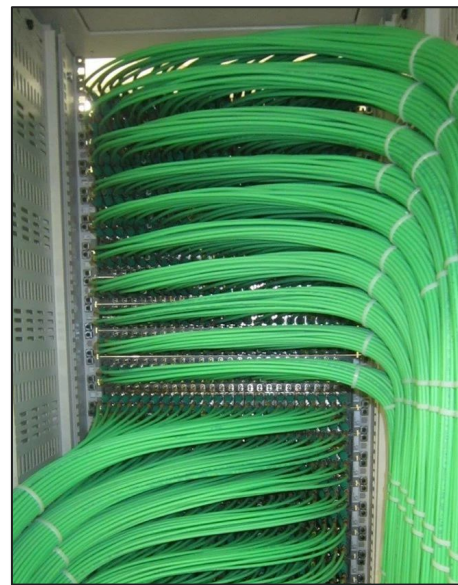
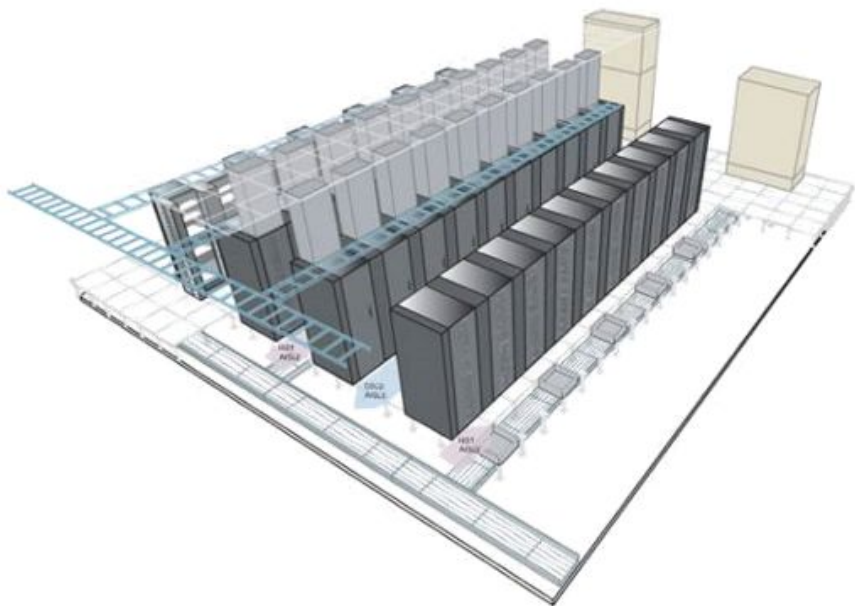
Well, that's true to a certain extent. However, having an effective cable management system requires training, thorough planning, careful product selection, and, arguably most important, discipline.

## Perspective...

*Although cabling represents less than 10% of a data centers overall network investment, expect it to outlive most other network investments and components, and expect it to be the most difficult and potentially costly component to replace.*






# The Importance of Cable Management

There are hundreds, if not thousands, of cables and connections in even a medium sized data center.



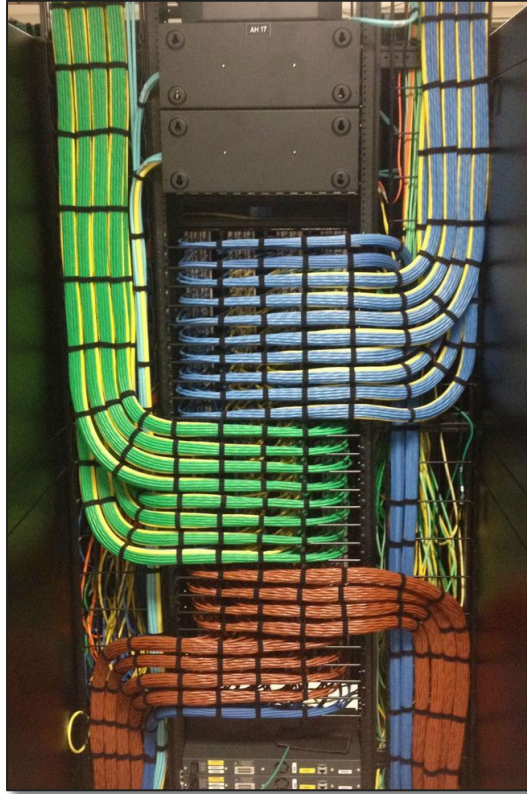
Cable management practices, good and bad, can have an enormous impact on many facets of data center operations...

# The Importance of Cable Management

Good Cable Management	VS	Bad Cable Management
Save time when moving or replacing cables, and during maintenance and troubleshooting	Time 	Waste time trying to find and identify cables during maintenance and troubleshooting
Efficient operation – airflow is not impeded by congested or poorly placed cables	Efficiency 	Cable congestion causes restricted airflow putting unnecessary increase in cooling costs
Reduced workplace hazards and liabilities – Safety first!	Safety 	Cables blocking fire suppression; tripping hazards in the workplace
Optimal circuit and signal performance	Signal 	Interference and crosstalk; inefficient and slow network
Save money by extending the life of your cables; greatly reduce potential for outages; respond quickly when something goes wrong	Money 	Can be costly and inflexible if not maintained; intermittent failures; difficult to troubleshoot; time = \$\$\$

Source: [https://www.labelidsystems.com/blog/2016/08/11/good-cable-management-vs-bad-cable-management/?utm\\_content=bufferd8eff&utm\\_medium=social&utm\\_source=pinterest.com&utm\\_campaign=buffer](https://www.labelidsystems.com/blog/2016/08/11/good-cable-management-vs-bad-cable-management/?utm_content=bufferd8eff&utm_medium=social&utm_source=pinterest.com&utm_campaign=buffer)

# Which one would you rather work on?



# The Importance of Cable Management - Standards

## Cabling standards...

Industry standards provide guidelines that define which cables and connectors are appropriate to support each type of network and suggest methods for maintaining high levels of cable performance.

Cabling standards are reviewed and adjusted every 5 to 10 years to keep pace with technology advancements and future requirements.



# The Importance of Cable Management - Planning

## Planning...

As you can imagine, “cabling” a data center requires a substantial amount of planning. Topology, documentation, training, labeling, and developing repeatable and scalable methodologies are all important. Equally important (and often overlooked) is physical capacity planning for cabling.

Planning for and reserving capacity for future growth is critical to the long term effectiveness of a data center’s infrastructure.



*“Organizing is what you do before you do something, so that when you do it, it is not all mixed up.” -A. A. Milne*



# The Importance of Cable Management - Planning

## “Cable Fill Ratio”

Data center cables reside in many areas: in overhead cable trays, below a raised floor, and inside a cabinet in vertical and horizontal cable managers. Understanding how many of a particular type of cable can fit into any one of these areas is an important part of the planning process. A common industry term related to this is, “cable fill ratio”.

Fill ratio is the percentage of usable area within a product that is populated with cables, including the required gaps between cables. Cable fill considers cable diameter and is an estimate of the number of cables that will fit in an area based on a desire fill ratio.

## Example:

### Calculation for 50% cable fill ratio

$$\left( \frac{\text{Usable Area}}{\text{Area of Cable}} \times 50\% \right) \times 50\%$$

50% is the fill ratio = 25% of the available area is populated with cable and 25% is the required space for access to cables

**Usable Area** = interior width of product x interior depth of product

**Area of Cable** =  $(\text{Cable Diameter}^2 \times \pi) / 4$



# The Importance of Cable Management - Discipline

By far the biggest variable in the quality of any cabling installation is the human element. Standards, thorough planning, and world class products will never be fully appreciated unless there is a commitment to discipline in maintaining the cabling network for the long haul.



*"The triumph of anything is a matter of organization." -Kurt Vonnegut*

# The Importance of Cable Management

## What is Enconnex's role?

Products.

Specifically, cable management products.

But, not the same cable management products every other manufacturer offers.

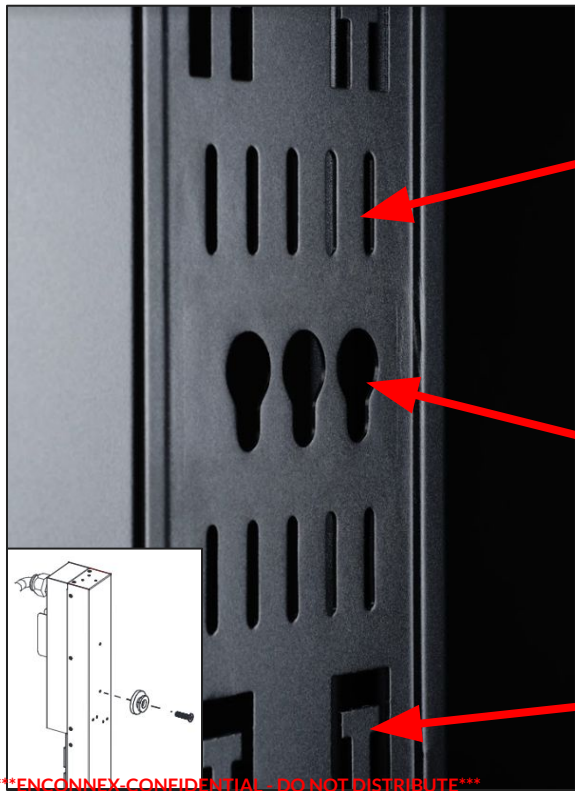
True to our "*Born to Innovate*" tagline, we have an opportunity to bring new cable management products and features that, by their very use, promote adherence to standards and facilitate a disciplined approach to maintaining effectively managed cables.



*"A place for everything and everything in its place" -Benjamin Franklin*

# Innovation Challenge!

Typical data center cabinet sheet metal features:



## Slots

- Used to support cable bundles
- Cumbersome to fit Velcro through slots
- Relatively small room to work between mounting rail and side panel

## Keyhole feature

- Currently used exclusively to mount PDUs
- Could we use this same feature to support cables?

## T-Slots

- Faster alternative to regular slots
- Still cumbersome
- Difficult to get grip on cable bundle

Application:



Organize and support cable bundles between mounting rails and side panel

# Innovation Challenge!



# Innovation Challenge!



## Design Requirements/Goals:

- Faster and more convenient to install than current method(s)
- Supports weight of cable bundles to reduce/prevent strain at connections
- Supports cable bundles from ~0.8" to 3.0" (20 mm to 75 mm) in diameter
- Quick attachment to sheet metal feature
- Removable from sheet metal for moves/adds/changes to cabling
- Low profile to minimize intrusion into cable management space
- Does not create pinch point on cable bundle
- Can replace Velcro or be used with/in combination
- Low-cost, < \$0.25 - We will include approximately 10-20 pieces with every cabinet

## Bonus/Nice to Have:

- If molded plastic - explore ways to incorporate Enconnex logo and/or color
- Swivels when installed in sheet metal to mitigate cable pinching/sharp bends
- Compatible with range of sheet metal thicknesses (1.2 mm to 2 mm)

# Innovation Challenge - Cable (bundle) Support

Example Consumer Products from web search...



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# Innovation Challenge!

This innovation challenge is open to all Enconnex employees. All ideas are welcome!

Drawings, sketches, mock-ups, or simply words on a page are all acceptable.

A prize will be awarded for any idea (or ideas) that end up in one of our products.

Contact Duke Robertson with any questions on products or applications.

Submit your ideas to Duke Robertson and Robert Faulkner by Friday, May 27th.

**At Enconnex—We Are  
All Born to Innovate**

**Thank you and happy innovating!**





**Quality**



## ISO 9001:2015

A globally standardized and recognized platform for building a sustainable Quality Management System (QMS)

Why? - The four “C’s”

- 1) Completeness
- 2) Consistency
- 3) Control
- 4) Quality

# Quality Policy

The Core of the QMS

## The Principles



# QMS Status

Where are we in the process?

Quality is everyone's job!

## Plan - till 2020 Q2

Hired Tim and then Ishpreet, set goals, organized the structure, identified responsibilities, and set timelines.

## Do - 2020 Q3 through 2021 Q1

Create Quality Manual and all major procedures, review and audit those documents, identify and measure quality objectives, train, and review with management.

## Check - 2021 Q1 through 2021 Q3

Internal audits of the processes that affect quality, corrective actions and risk analysis, adjustments, and 3rd party external ISO audit and certification to 9001:2015

## Act - 2021 Q3 - 2022 Q3

Operate using the QMS, auditing and adjusting as necessary to continually improve. Focus on customer satisfaction, endless innovation, and total quality management. Confirm through re-audit.

## Repeat - 2022 Q4 and beyond

The Quality policy is exemplified each and every day in all facets of the organization and shows itself readily to all customers and prospects.

# Internal Audit Results

- Fully cycle completed in Q4
- Corrective Actions in process with focus on
  - Supplier Selection
  - Design Control
  - Training
  - Product Identification and Traceability
  - Manufacturing Control
  - Customer Satisfaction and Complaints
  - Material Storage and Handling
  - Management Review
  - Continual Improvement
  - Inspection Control
- Key Steps
  - Revise procedures
  - Fully integrate US and China team processes

# Quality Overview

## Procedures

- QMS procedures revised and uploaded to the shared folder
- Criteria for reworking paint defects
- Trainings uploaded in e-learning module

## Customer complaints

- Enconnex shipped wrong part: **4 orders**
- Customer bought wrong part: **1 order**
- Defective product- Vendor: **4 orders**
- Defective product- Enconnex: **2 orders**
- Freight damage: **1 order**
- Communication breakdown: **3 orders**

## OdoO Integration

- Incident management module- NCR, CAPA (by June)
- RMA, Repair module (end of May)
- E-learning module
- Enhancements in Quality Checks

# What's Next

## External Audit Dates

- US Surveillance Audit – July 20-21
- China Stage 1 Audit- Aug 2022 (Might change)


## External Audit Planning

- Implement and monitor performance of the updated procedures
- Conducting annual refresher training
- Ensure China site readiness for upcoming audit

# DRASCI

<b>D</b>	<b>Driver</b>	Assists those who are responsible for a task.
<b>R</b>	<b>Responsible</b>	Assigned to complete the task or deliverable.
<b>A</b>	<b>Accountable</b>	Has final decision-making authority and accountability for completion. Only 1 per task.
<b>S</b>	<b>Support</b>	Provides support during implementation.
<b>C</b>	<b>Consulted</b>	An adviser, stakeholder, or subject matter expert who is consulted before a decision or action.
<b>I</b>	<b>Informed</b>	Must be informed after a decision or action.

# DRASCI

		VP of Enconnex	VP of product Management	Director of operations	Marketing Director	Director of Engineering	Project/Product Manager	Marketing Specialist	Manufacturing Manager	Quality Manager	Manufacturing Engineer	Design Engineer	Operations Manager	Sales Person	Warehouse Associate	Receiving/Shipping Associate	QC Engineer	QC Inspector
3	<b>Customer Complaint Procedure</b>																	
3.1	Receiving customer complaints and understanding the complaint information	I		A						R	S		D	D				
3.2	Verifying the complaint information and conducts preliminary analysis			A						R	S						R	D
3.3	Monitor the status of the complaint and issues a CAPA form to the relevant department.	A								R							R	D
3.4	Ensures all the CAPA records and forms are stored in the shared drive.	A								R							R	D
3.5	Responsible for authorizing the disposition of the returned or nonconforming products			A		D			D	R	D						R	D
3.6	Collects the complete information and submits a complaint record in the CRM database			A						D			D	R			R	D
3.7	Handling customer return goods			A						D			R	S			R	



 ENCONNEX

Born to Innovate

Q & A



Born to Innovate

**Thank You!**