

Exhibit D: 23-03713RW  
Modification 4

Boldyn Networks Proposal to  
Utah Transit Authority (UTA)  
**Layer Three Switch  
Upgrade**

September 16th, 2024



This response includes data that shall not be disclosed outside of UTA without the permission of Boldyn Networks Transit US LLC (Boldyn Networks) and shall not be duplicated, used or disclosed – in whole or in part – for any purpose other than to evaluate this response. This restriction does not limit UTA’s right to use information contained in this response if it can be obtained from another source, without restriction, and is subject to UTA’s obligation to release public documents. The data subject to this restriction is contained in pages marked with the following legend:

*Use or disclosure of data contained on this page is subject to the restriction on the title page of this Proposal.*



## Contents

---

<b>1.</b>	<b>Executive Summary .....</b>	<b>4</b>
1.1	UTA Needs.....	4
1.2	Solution Overview .....	4
1.3	Lantech TPGS-H7608XT-10-54WVI-BBT-C.....	5
1.4	Boldyn Networks Contact.....	6
<b>2.</b>	<b>Solution Components .....</b>	<b>7</b>
2.1	Lantech L3 switch.....	7
<b>3.</b>	<b>Pricing Summary .....</b>	<b>8</b>
3.1	Capex Pricing Breakdown .....	8
3.2	Opex Pricing Breakdown.....	9



## 1. Executive Summary

### 1.1 UTA Needs

UTA have requested a quote from Boldyn Networks to supply, install, maintain and operate new layer three switches across the FrontRunner Fleet. Boldyn Networks thanks UTA for this opportunity, this quote outlines the solution and pricing is provided below.

### 1.2 Solution Overview

Layer 3 switches offer several advantages over Layer 2 switches, making them a preferred choice for more complex and scalable network environments. Here are some key benefits:

- 1. Routing Capabilities:** Unlike Layer 2 switches, which only handle data at the MAC address level, Layer 3 switches can perform routing functions. This means they can route data between different VLANs and subnets, reducing the need for separate routers.
- 2. Scalability:** Layer 3 switches are highly scalable, allowing for the expansion of networks without significant performance degradation. This makes them suitable for growing businesses and large networks.
- 3. Security:** They offer advanced security features, such as access control lists (ACLs) and IP-based filtering, which are not available on Layer 2 switches.
- 4. Quality of Service (QoS):** Layer 3 switches can prioritize traffic based on IP addresses and other criteria, ensuring that critical applications receive the necessary bandwidth and reducing latency.
- 5. Lower Latency:** By handling routing internally, Layer 3 switches can reduce the latency associated with sending data to an external router.
- 6. Multiple Broadcast Domains:** They can divide networks into multiple broadcast domains, reducing broadcast traffic and improving overall network performance.

These features make Layer 3 switches a versatile and powerful option for modern network infrastructures. Boldyn proposes the following Layer three Switch for the FrontRunner Fleet to meet UTAs future needs to accommodate new onboard applications/solutions for the Modern Train Platform.



### 1.3 Lantech TPGS-H7608XT-10-54WVI-BBT-C

Fully EN50155 compliant for Rolling Stock, the TGPS-H7608XT has the following specifications:

Hardware Specification	
Standards	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3an 10Gbase-T IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning Tree IEEE802.1w Rapid Spanning Tree IEEE802.1s Multiple Spanning Tree IEEE802.3ad Link Aggregation Control Protocol (LACP) IEEE802.1AB Link Layer Discovery Protocol (LLDP) IEEE802.1X User Authentication (Radius) IEEE802.1p Class of Service IEEE802.1Q VLAN Tag IEEE802.3at/af Power over Ethernet Type 3 IEEE802.3bt Power over Ethernet Type 4 IEEE802.3bt Power over Ethernet
Switch Architecture	Back-plane (Switching Fabric): 136Gbps
Mac Address	16K MAC address table
Jumbo frame	10KB
Connectors	10/100/1000T: 8 x M12 8-pole X-coded with Push-Pull lock connectors (IEC 61076-2-101) Auto MDI/MDI-X function 100M/1G/2.5G/5G/10G Copper: 6x M12 8-pole X-coded port 9-14 Push-Pull lock connectors

Operating Temperature	-40C~70C / -40F~158F (85°C operation for 10min.)
Storage Temperature	-40°C~85°C / -40°F~185°F
Power Supply	Dual DC input 16.8~137.5VDC T code PoE extension input: 54~56VDC (for PoE at/bt)
Inrush Current	6A
PoE Budget (PoE model)	Internal 120W 450W with external PoE power supply (-PBANK model)
PoE pin assignment (PoE model)	M12 port #1~#8 (AT 30W) M12 port #13~#14 (BT 90W) Support IEEE 802.3bt/at/af End-point, Alternative A mode
Power Consumption	Max. 57W excludes PoE load
Dimensions	IP54 Aluminum alloy case (wall mount): 390mm(W)x100.5mm(H)x225mm(D)
Weight	4.9kgs
Installation	Wall Mount Design
EMI & EMS	FCC Part 15 Class A EN61000-6-2

	(IEC 61076-2-101) Power Input connector: 1 x M12 5-pole Male K-coded Reset/Console/USB: 1 x M12 8-pole A-coded DIDO: 1 x M12 5-pole A-coded 10/100/1000T: PoE Power Input Connector: 1 x M12 4-pole Male T-coded Out-Of-Band connector: M12 8-pole X-coded with Push-Pull lock connectors (IEC 61076-2-101)
Network Cable	1000Base-T: 4-pair STP Cat5E/6 cable; 10G Copper: 4-pair STP Cat6a/7 cable
LED	Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red) 100/1000T Ethernet port: Link/Activity (Green), Speed (Green); R.M. indicator (Green) PoE: Link/Act (Green) 100/1G/2.5G/5G/10G Copper port: Speed (100/1G/2.5G/5G: Green; 10G: Orange)
DI/DO	2 Digital Input (DI) : Level 0: -30~2V / Level 1: 10~30V Max. input current:8mA 2 Digital Output(DO): Open collector to 80 VDC, 50mA
Operating Humidity	5% ~ 95% (Non-condensing)

	EN61000-6-4 CE EN55032 Class A CE EN55024 CE EN61000-4-2 (ESD) Level 3 CE EN61000-4-3 (RS) Level 3 CE EN61000-4-4 (EFT) Level 3 CE EN61000-4-5 ED3 (Surge) Level 3 CE EN61000-4-6 (CS) Level 3 CE EN61000-4-8 (Magnetic field) Level 3
Verifications	EN50155/EN50121-3-2/EN50121-4; EN 45545-1, EN 45545-2 Fire & Smoke verification
Stability Testing	EN61373 (Shock and Vibration)
MTBF	120,279 hrs (standards: IEC 62380)
Warranty	5 years
Bypass**	Up to two pairs Bypass modules on 10GT ports to pass to next switch in case of power failure and CPU fail
Software Specification	
Lantech OS5 Platform	<a href="#">Download Software Datasheet</a>

\*Future release  
 \*\*Optional



## 1.4 Boldyn Networks Contact

Any questions concerning this proposal can be directed to:

Ross Colvin  
Director, Transit Sales and Business Development  
[ross.colvin@boldyn.com](mailto:ross.colvin@boldyn.com)  
(929) 376-1388



## 2. Solution Components

The following components are required to equip the five additional cars, Access Points and other peripheral equipment will be provided from existing UTA stock holdings:

	Item	Qty Per Car
<b>Option 1</b>	<b>Onboard Hardware (Layer two switch)</b>	
	Lantech L3 Managed switch -	1
	Huber & Suhner type 1356.17.0078, Sencity spot-s 3x3 WiFi MIMO for outdoor applications - bridge radio antenna <b>(10 required 8 from stock)</b>	2
	CAT6 "A" End CyBox to PoE Switch - 1 Meter (Coach) (M12 X-code to M12 X-code 90°)	1
	CAT6 "B" End CyBox to PoE Switch - 30 Meters - (Cab/Coach) (M12 X-code to M12 X-code 90°)	1
	Cab Car Cable Labels	1
	ICL Bracket "A" End Cab Car	1
	ICL Bracket "B" end Cab "A" & "B" Coach	1
	Combo Plate	2
	Ring Terminal, Nylon Insulated, 12-10 Gauge, 1/4" hole (Switch to plate bond)	4
	Ring Terminal, Nylon Insulated, 12-10 Gauge, No 10 screw (AP ground)	2
	Grounding Wire, Exane® 1068A 600V, 12 Gauge, Dark Grey	1

### 2.1 Lantech L3 switch



### 3. Pricing Summary

Item	Pricing
Hardware – 56 x Layer three switches and peripheral components	<b>\$326,884</b>
Labor (Boldyn Labor)	<b>\$116,395</b>
O&M 3.5 Years (for remainder of term Oct 2028)	<b>\$5,256</b>
T&E (Not to Exceed)	<b>\$10,000</b>
<b>Total</b>	<b>\$458,534</b>

#### 3.1 Capex Pricing Breakdown

Item	Qty Per Car	Extended Qty	Price
<b>Option 1 Onboard Hardware (Layer three switch)</b>			
Lantech L3 Managed switch - TPGS-L5208MGTA-8-54-WVI-C	1	56	\$273,000
CAT6 "A" End CyBox to PoE Switch - 1 Meter (Coach) (M12 X-code to M12 X-code 90°)	1	56	\$10,836
CAT6 "B" End CyBox to PoE Switch - 30 Meters - (Cab/Coach) (M12 X-code to M12 X-code 90°)	1	40	\$12,540
Cab Car Cable Labels	1	1	\$75
Combo Plate	1	56	\$21,000
Ring Terminal, Nylon Insulated, 12-10 Gauge, 1/4" hole (Switch to plate bond)	4	4	\$120
Ring Terminal, Nylon Insulated, 12-10 Gauge, No 10 screw (AP ground)	2	2	\$60
Grounding Wire, Exane® 1068A 600V, 12 Gauge, Dark Grey	1	1	\$218
<b>Hardware Total</b>			<b>\$317,849</b>
<b>Miscellaneous</b>			
Consumables, Cable ties, Rivnuts, screws/bolts/washers	1		\$160
Shipping	1		\$4,000
Spare L3 switch	1	1	\$4,875
<b>Miscellaneous Total</b>			<b>\$9,035</b>
Travel and Expenses	1		\$10,000
<b>Labour</b>	<b>LoE</b>		
Project Manager (Paul Kellett)	120	\$214.43	\$25,732
Project Engineer - (Matt Holdrege)	120	\$214.43	\$25,732
System Engineer - (Johnny Ritzer)	40	\$214.43	\$8,577
Procurement - 3 days (Chritine Orford)	24	\$214.43	\$5,146
Configuration - Switches - (Andrew Desimon)	28	\$214.43	\$6,004
NOC Splunk re-config and testing (Carson Smart)	20	\$214.43	\$4,289
Install/testing (4 Hrs per car x 2 Technician) (Doug Yennie)	224	\$175.00	\$39,200
Update Design Documentation - (Matt Holdrege)	8	\$214.43	\$1,715
<b>Labor Total</b>			<b>\$116,395</b>





### 3.2 Opex Pricing Breakdown

Quote 2 - FrontRunner Layer 3 Switch Upgrade			
Milestone	Description	Percentage	Timeline (NTP+)
1	Mobilization	20%	NTP + 1 week
2	Hardware Delivery	50%	NTP + 8 weeks
3	Upon Completion/Acceptance of 5 New Cars	30%	NTP + 16 weeks

