ASET
Arizona Strategic Enterprise Technology

AZNet II – Arizona Network

BASELINE POWER AND BTU

2/7/13
VERSION 2.0

This document is intended to provide baseline power needs and BTU output for AZNET II LAN refresh. Also within this document are the baselines for data routers that are part of the refresh project. The items listed are meant to be a baseline reference guide for allocation of power and proper BTU planning.

All LAN and Router devices will be listed above 70% capacity for higher planning loads. Not all deployments will meet this examples but have the potential to. AZNET II reverse the right to substitute the below devices; if substituted the new device will perform at same level or above.

In most cases ME 3600's, 3560's, 2960's and 3750's will require a NEMA 5-15P plug. In most case 4500 and 6500 will require a NEMA L5-20P. Site survey could determine adjusted electrical interface.

Standard Cisco 3560CG 8Port LAN Switch, will apply for small deployments:

Power Consumption/Heat Dissipation Summary

Product	Percentage of PoE Power used	Total PoE Output Power Available (W)	Total PoE Output Power Used (W)	Total PoE Output Power Remaining (W)	Total Heat Dissipation (BTU/Hr)
CG-8PC-S (165W)	**60%** 	**124.00**	**72.00**	**52.00**	**109**

Operating temperature up to 10,000 ft (3000 m)	23º to 113ºF**		
Operating relative humidity	5% to 95% noncondensing		
Dimensions (H x W x D)	1.75 x 10.6 x 9.4 1 RU		
AC/DC input voltage and current	Voltage (Autoranging) 100 to 240 VAC	Current 1.7-.8 A	Frequency 50 to 60Hz

Standard Cisco 2960S 24 Port LAN Switch, will apply for most deployments:

Power Consumption/Heat Dissipation Summary

Product	Percentage of PoE Power used	Total PoE Output Power Available (W)	Total PoE Output Power Used (W)	Total PoE Output Power Remaining (W)	Total Heat Dissipation (BTU/Hr)
24PS-L(370W)	**71.35 %** 	**370.00**	**264.00**	**106.00**	**1154.27**

Operating temperature up to 10,000 ft (3000 m)	32º to 104ºF**		
Operating relative humidity	10% to 90% noncondensing		
Dimensions (H x W x D)	1.75 x 17.5 x 15.2 1 RU		
AC/DC input voltage and current	Voltage (Autoranging) 100 to 240 VAC	Current 5 to 2 A	Frequency 50 to 60Hz

Standard Cisco 2960S 48 Port LAN Switch, will apply for most deployments:

Power Consumption/Heat Dissipation Summary

Product	Percentage of PoE Power used	Total PoE Output Power Available (W)	Total PoE Output Power Used (W)	Total PoE Output Power Remaining (W)	Total Heat Dissipation (BTU/Hr)
48FPS-L(740W)	**72.97 %**	**740.00**	**540.00**	**200.00**	**2274.39**

Operating temperature up to 10,000 ft (3000 m)	32º to 104ºF**		
Operating relative humidity	10% to 90% noncondensing		
Dimensions (H x W x D)	1.75 x 17.5 x 15.2 1 RU		
AC/DC input voltage and current	Voltage (Autoranging) 100 to 240 VAC	Current 9 to 4 A	Frequency 50 to 60Hz

Cisco 3750X Switch, Distribution will apply for most deployments:

Power Consumption/Heat Dissipation Summary

Product	Percentage of PoE Power used	Total PoE Output Power Available (W)	Total PoE Output Power Used (W)	Total PoE Output Power Remaining (W)	Total Heat Dissipation (BTU/Hr)
12S-S (350W)	**N/A**	**N/A**	**N/A**	**N/A**	**1207**

Operating temperature up to 10,000 ft (3000 m)	32º to 104ºF**		
Operating relative humidity	5% to 95% noncondensing		
Dimensions (H x W x D)	1.75 x 17.5 x 18.0 1 RU		
AC/DC input voltage and current	Voltage (Autoranging) 100 to 240 VAC	Current 4 to 2 A	Frequency 50 to 60Hz

Cisco 4500 series High density closet LAN Switch, deployment will require site survey and validation.

Power Consumption/Heat Dissipation Summary

Slot	Line Card	Optional Uplink Module	Power over Ethernet Capabilities
1	48-RJ45V	---	IEEE PoE
2	48-RJ45V	---	IEEE PoE
3	48-RJ45V	---	IEEE PoE
4	48-RJ45V	---	IEEE PoE
5	SUP	---	---
6	SUP	---	---
7	48-RJ45V	---	IEEE PoE
8	48-RJ45V	---	IEEE PoE
9	24-SFP	---	---
10	24-SFP	---	---

Minimum Power Supply	Percentage of Power Used
Combined PWR 4200W with dual 220V inputs on each power supply.	Data: 60.10% PoE: 58.72%

First Alternative Power Supply	Percentage of Power Used
Combined PWR 4200W with three 220 volt inputs.	Data: 60.10% PoE: 77.46%

Total Output Current	Total Output Power	Total Typical Output Power	Total Heat Dissipation
180.20 Amps	**4962.69 Watts**	**3970.15 Watts**	**10823.87 BTU/Hr**

Operating temperature up to 10,000 ft (3000 m)	32º to 104ºF**
Operating relative humidity	10% to 90% noncondensing
Dimensions (H x W x D)	24.35 x 17.31 x 12.50 in. 14 RU
Input current (rated)	Two 12A at 100 VAC or Two 12A at 200 VAC
Input voltage	100 to 240 VAC (±10% for full range)

Cisco 6500 series Multi Tenant building or Data Center; deployment require site survey and validation

Power Consumption/Heat Dissipation Summary	
Minimum Power Supply	Percentage of Power Used
Single/Redundant WS-CAC-6000W with a Single 220V input	55.57%
First Alternative Power Supply	Percentage of Power Used
Single/Redundant WS-CAC-3000W	89.30%

Total Output Current	Total Output Power	Total Heat Dissipation
58.92 Amps	**2475.64 Watts**	**9942.31 BTU/Hr**

Input voltage	200-240 Volts AC
Input current	16A , (each input, dual per power supply)
Dimensions (H x W x D)	36.75 x 17.25 x 20.70 in 21 RU height
Temperature	32 to 104ºF (0 to 40ºC)
Relative Humidity	10 to 85%

PE Mall Router ME 3600

On Mall MPLS	
Input voltage	100 to 240 VAC, autoranging
Input current	0.4 to 3.5 A
Heat Dissipation	533 BTU/hr
Dimensions (H x W x D)	1.72 x 17.50 x 20.33 1 RU height
Typical Power (Watts)	241 W
Temperature	32 to 104ºF (0 to 40ºC)
Relative Humidity	5% to 95%

Small to Medium Router: Cisco 2900 series

Site Size	0 to 24 Users	25 to 100 Users
AC Input Voltage	100 to 240 VAC auto ranging	100 to 240 VAC auto ranging
AC Input Current Range AC	3.4 to 1.4A	3.4 to 1.4A

Power Supply (Maximum)	7.6A with POE Power Supply	7.6A with POE Power Supply
Typical Power (Watts)	60	70
Maximum Power with AC Power Supply (Watts)	320	340
Maximum Power with PoE Power Supply (Platform Only) (Watts)	370	405
Dimensions (H x W x D)	3.5 x 17.25 x 18.5 in	3.5 x 17.25 x 18.5 in
Rack Height	2RU	2RU
Temperature	32 to 104ºF (0 to 40ºC)	32 to 104ºF (0 to 40ºC)
Relative Humidity	10 to 85%	5 to 85%
Heat Dissipation	1092 BTU/hr	1092 BTU/hr

Medium to Large Router: Cisco 3900 series

100 to 250 users	
Input voltage	100 to 240 VAC, autoranging
Input current	0.4 to 3.5 A
Heat Dissipation	1370 BTU/hr
Dimensions (H x W x D)	5.22 x 17.25 x 18.75 in 3 RU height
Typical Power (Watts)	85 to 400 W
Temperature	32 to 104ºF (0 to 40ºC)
Relative Humidity	10 to 85%