CD/SCF/DMS/WAN Design Note

Physical Infrastructure Requirements for Computing of WANNR Group in FCC2 Computing room

Current Status and FY09-11 Projections

Abstract

This document describes the current status and projected FY09-11 requirements for physical infrastructure to support computing of WANNR group in FCC2 Computer Center. It does not cover any requirements for network equipment located in FCC2 neither resources needed in FCC1 CR.

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Overview.

This document describes the current status of physical infrastructure supporting computers of WANNR Group in FCC2 CR. It provides estimates for additional resources needed in FY09-11 period. It does not cover any requirements for network equipment, such as routers and switches located in FCC2 neither covers resources needed in FCC1 CR.

The purpose of this document is to provide building management enough information for planning of computing resources and rack space in FCC2.

Current Status.

The Table 1 below summarizes resources used by WANNR group computing in FCC2 currently. A total number of servers is 32. All machines can be divided into two categories, one is critical missions servers and another data analysis and processing. The first category of servers requires two redundant and independent power sources, as well as extended support by UPS power. The second category of machines can sustain a longer power outage.

As of now machines are located in 5 different racks among with machines of other groups.

Table 1: Current resources used by WANNR computers

	FCC2-1180	FCC2-1181	FCC2-1182	FCC2-1169	FCC2-1166	Total
Boxes	9	6	2	11	2	30
Total computers	9	6	2	13	2	32
Critical Mission Servers	6	0	0	0	0	6
RMU	20	15	3	21	4	63
Rack space	1	0.8	0.2	1	0.2	3.2
PS count	16	8	1	11	2	38
PS KW	4.2	4.2	0.8	3.8	0.8	13.8
PS VA	38	38	7	34	7	124
#ckt@20A	3	3	1	2	1	10
#ckt@30A	2	2	1	2	1	8

FY09-11 Projection

This year plan is to deploy 5 additional servers in June-July of 2009. The Table 2 and chart below give our projections for period FY09-11.

Table 2: Projected resources needed for WANNR in FY09-11

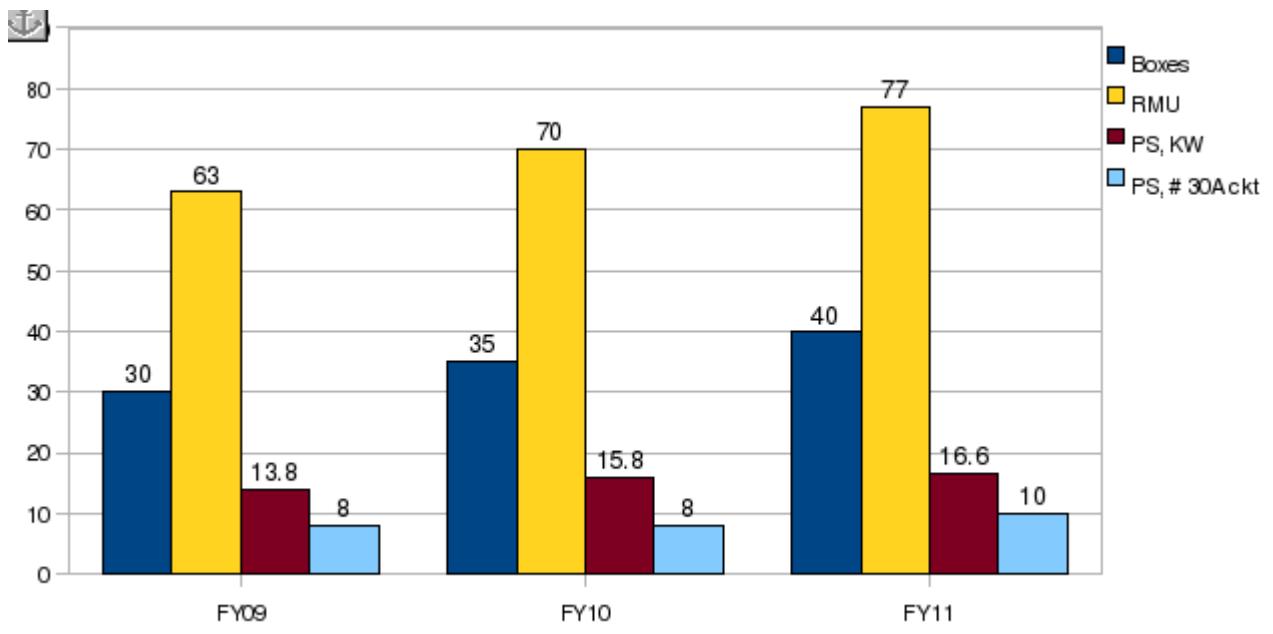|	FY09	FY10	FY11
Servers	30	35	40
Critical Mission	7	8	9
RMU	63	70	77
Racks	3.2	3	3.75
PS, KW	13.8	15.8	16.6
PS, # 30A ckt	8	8	10
PS, # 20A ckt	10	12	13

Figure 1: Projected Resources

Rack layouts.

Figure 2 below depicts options for layout of racks. A rack with critical mission servers might have about 10 servers. Racks with data processing machines might have higher density of computers. For the purpose of this document we will use an estimate of 15 machines for such a rack.
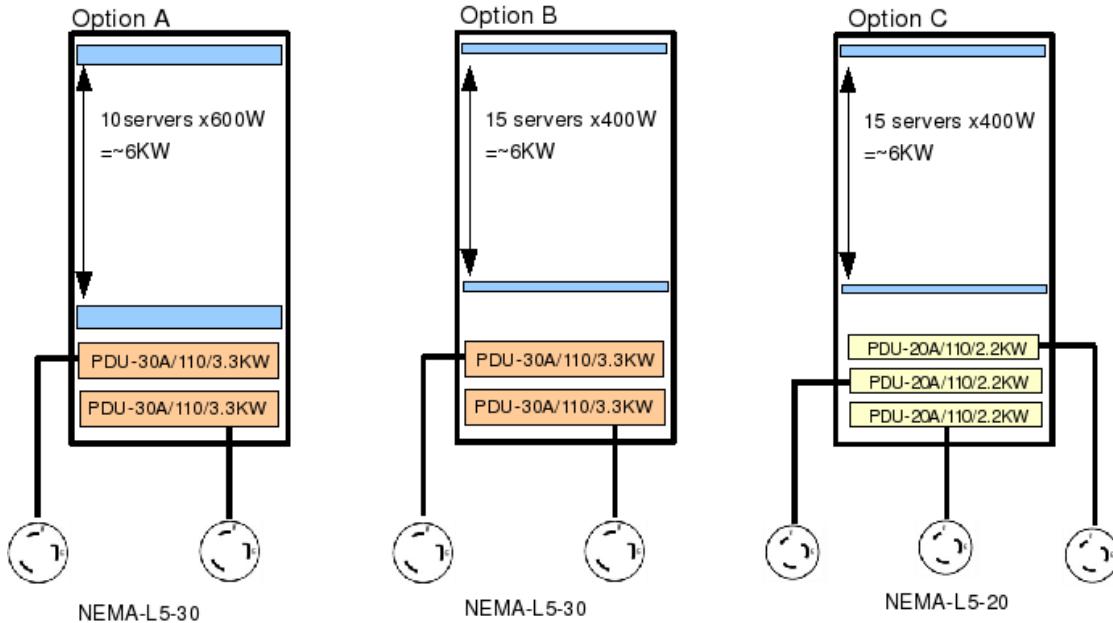

Figure 2: Desired rack layout

Desired Receptacles type.

It is preferable to standardize two types of receptacles for power sources. Our preference is NEMA-L5-20P for a 20A ckt and NEMA L5-30P for a 30A ckt.

Summary.

In period FY09-11 WANNR will need 3 racks in FCC2 with reserved one additional rack for contingency and potential FY11 expansion. Depending on type of supplied power circuits two or three PDU units will be installed into each rack. It is planned to deploy metered/switched PDU with capability of remote management. Our first preference is to have a single location for all four racks. Considering the current density of computing in FCC2, should it be a problem a solution with not more than two locations would be acceptable.