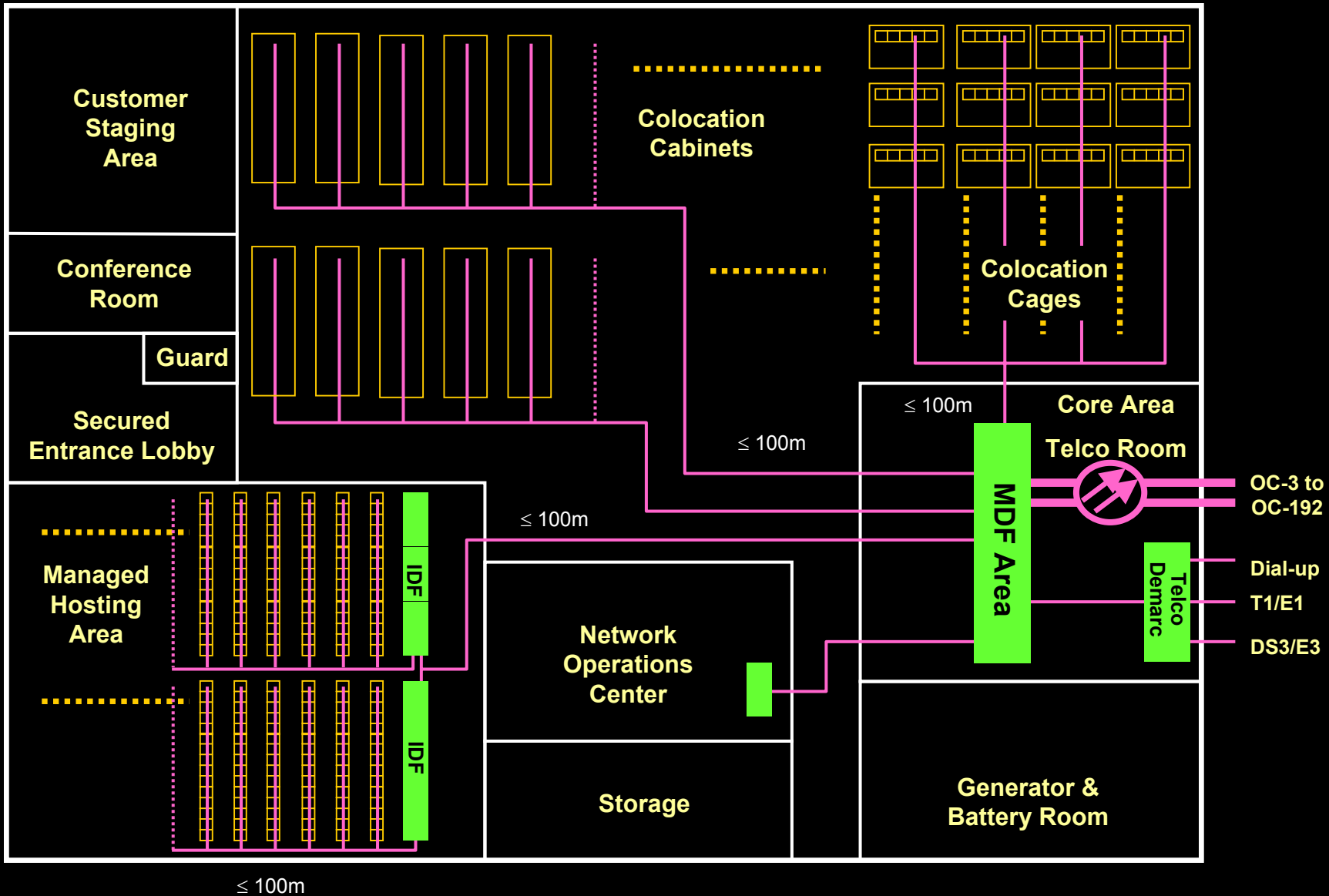




Cabling in Internet Data Centers

Luc Adriaenssens
Director, SYSTIMAX Labs
Avaya

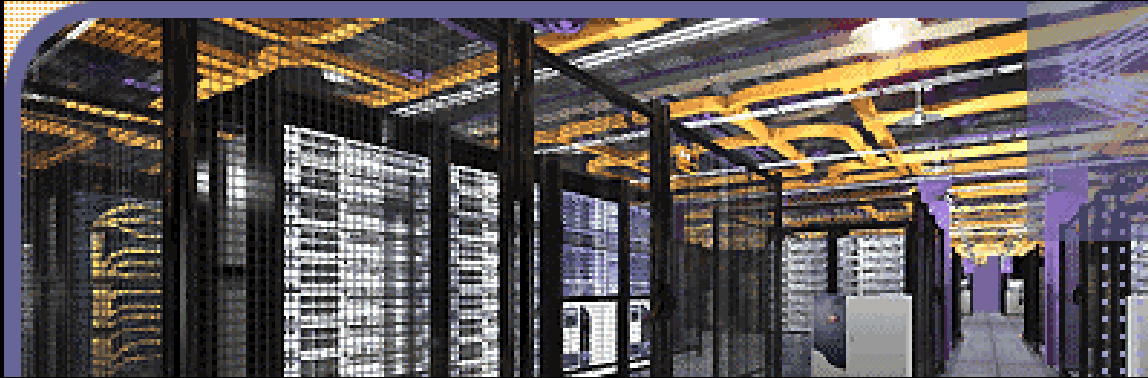
Typical Data Center Layout



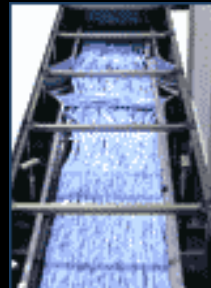
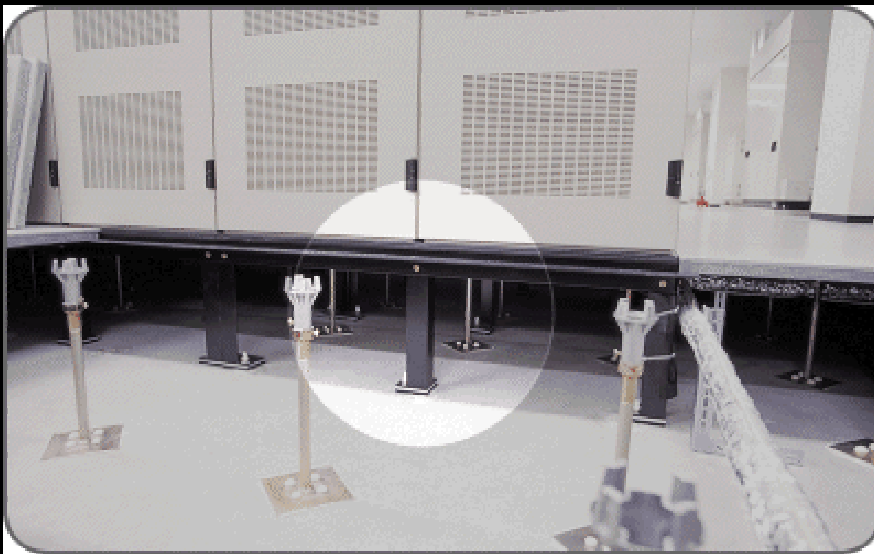
Rows of Cabinets



Sections of Cages



Cabling/Access



US IDC Cabling Shipment Forecast

World Information Technologies (1/2001)

<u>4-pr cabling (Mm)</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>CAGR</u>
Cat 5	21.9	31.0	40.3	41.3	27.8	17.3	11.8	-9.8%
Cat 5e	83.9	148.7	251.5	368.8	493.6	597.8	727.4	43.6%
Cat 6	96.6	174.8	320.6	526.8	738.4	954.1	1,476.9	54.7%
Total (Mm)	202.3	354.4	612.4	937.0	1,259.8	1,569.2	2,216.2	49.2%
<u>4-pr cabling (%)</u>								
Cat 5	10.8%	8.7%	6.6%	4.4%	2.2%	1.1%	0.5%	
Cat 5e	41.5%	41.9%	41.1%	39.4%	39.2%	38.1%	32.8%	
Cat 6	47.7%	49.3%	52.4%	56.2%	58.6%	60.8%	66.6%	
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
<u>Cum w/o repl (Mm)</u>								
Cat 5	21.9	52.8	93.1	134.4	162.2	179.5	191.4	
Cat 5e	83.9	232.6	484.1	852.9	1,346.5	1,944.3	2,671.7	
Cat 6	96.6	271.4	592.0	1,118.8	1,857.2	2,811.2	4,288.2	
Total	202.3	556.8	1,169.2	2,106.1	3,365.9	4,935.1	7,151.3	
<u>Cum w/o repl (%)</u>								
Cat 5	10.8%	9.5%	8.0%	6.4%	4.8%	3.6%	2.7%	
Cat 5e	41.5%	41.8%	41.4%	40.5%	40.0%	39.4%	37.4%	
Cat 6	47.7%	48.7%	50.6%	53.1%	55.2%	57.0%	60.0%	

Summary

- ❖ Data centers are often massive
- ❖ Cabling is typically well organized & continuously bound
- ❖ Cabling is easily accessible but not easily separated
- ❖ Twisted pair cabling in data centers is predominantly Cat-6

	<u>1999</u>	<u>2002</u>	<u>2005</u>
Cat 5	10.8%	6.4%	2.7%
Cat 5e	41.5%	40.5%	37.4%
Cat 6	47.7%	53.1%	60.0%

- ❖ Our objectives should focus on Cat-6