



IBM Akıllı Çözümler Sanal Etkinliği

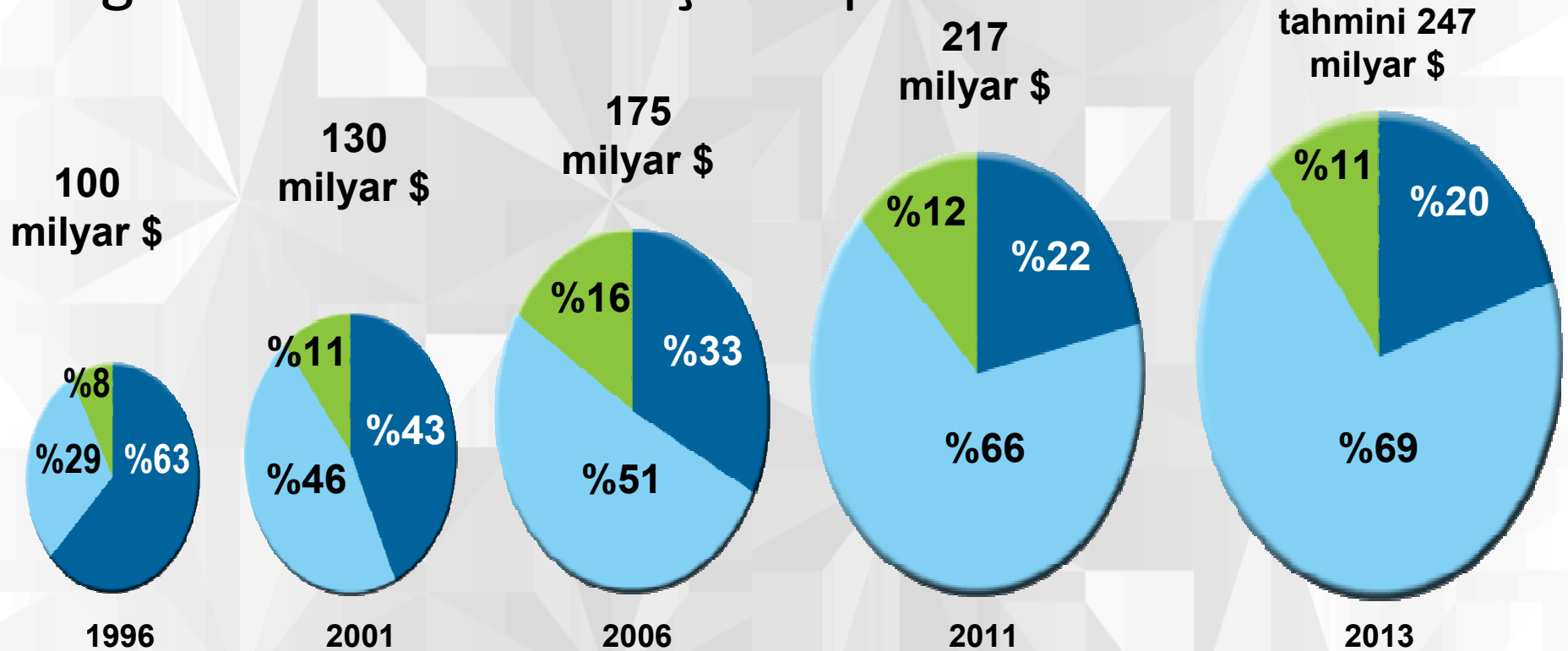
IBM Pureflex: Gücün Tek Bir Noktadan Yönetimi

Ozan BALTACI

IBM Systemx Teknik Danışmanı



BT İşletim Maliyetleri Dünya Geneline Sunucu, Güç, Soğutma ve Yönetim İçin Yapılan Harcamalar



Yeni Sunucu gideri yüzdesi

Güç ve soğutma maliyetleri

Sunucu yönetimi ve yönetici maliyetleri

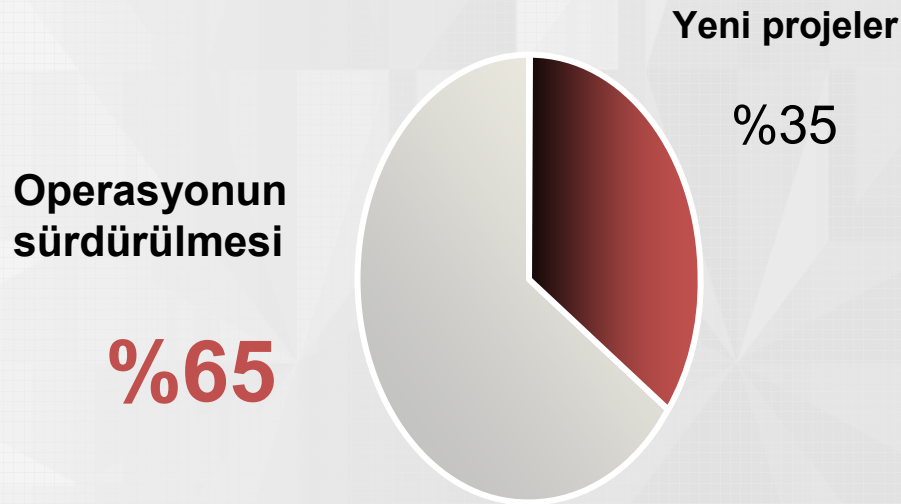
5 şirketten yalnızca biri BT bütçesinin yarısından fazlasını inovasyona ayırıyor

Daha az verimli veri merkezleri

Yeni teknoloji kullanımı:

- %43 – yeni teknolojilerin hızlı kullanımı
- %1 – sanal sunucu otomasyon teknolojileri
- %21 – depolama sanallaştırması kullanımı
- %3 – katmanlı depolama

Sonuçlar:

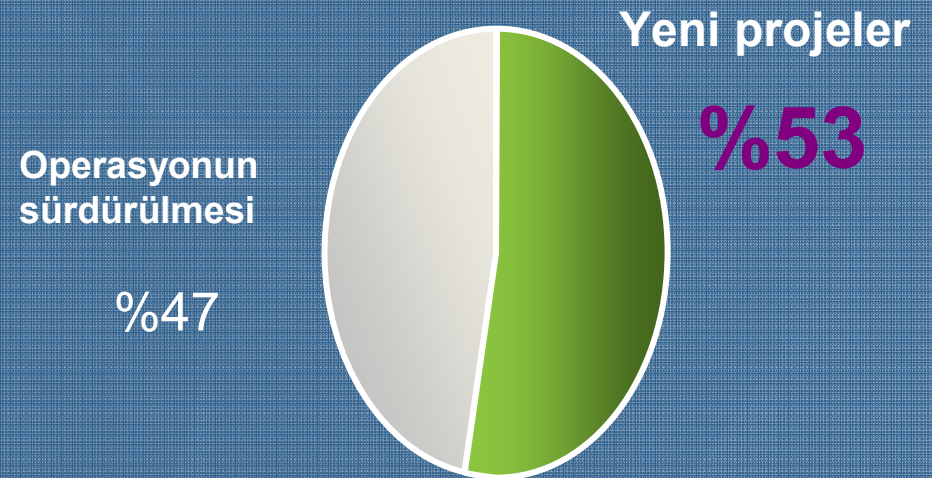


En verimli veri merkezleri

Yeni teknoloji kullanımı:

- %86 yeni teknolojilerin hızlı kullanımı
- %58 sanal sunucu otomasyon teknolojileri
- %93 depolama sanallaştırması kullanımı
- %87 katmanlı depolama

Sonuçlar



IBM PureSystems Ailesi

PureFlex



Infrastructure

Delivering Infrastructure Services

PureApplication



Application Platform

Delivering Platform Services

PureData



Data Platform

Delivering Data Services

IBM Flex System Enterprise Chassis Ön Görünüm

Yükseklik: 10 U
19" Rack

14x Sunucu
Yuvası
(7x tam boy)

Sunucular:

- Power
- Intel
- FSM
- Storage

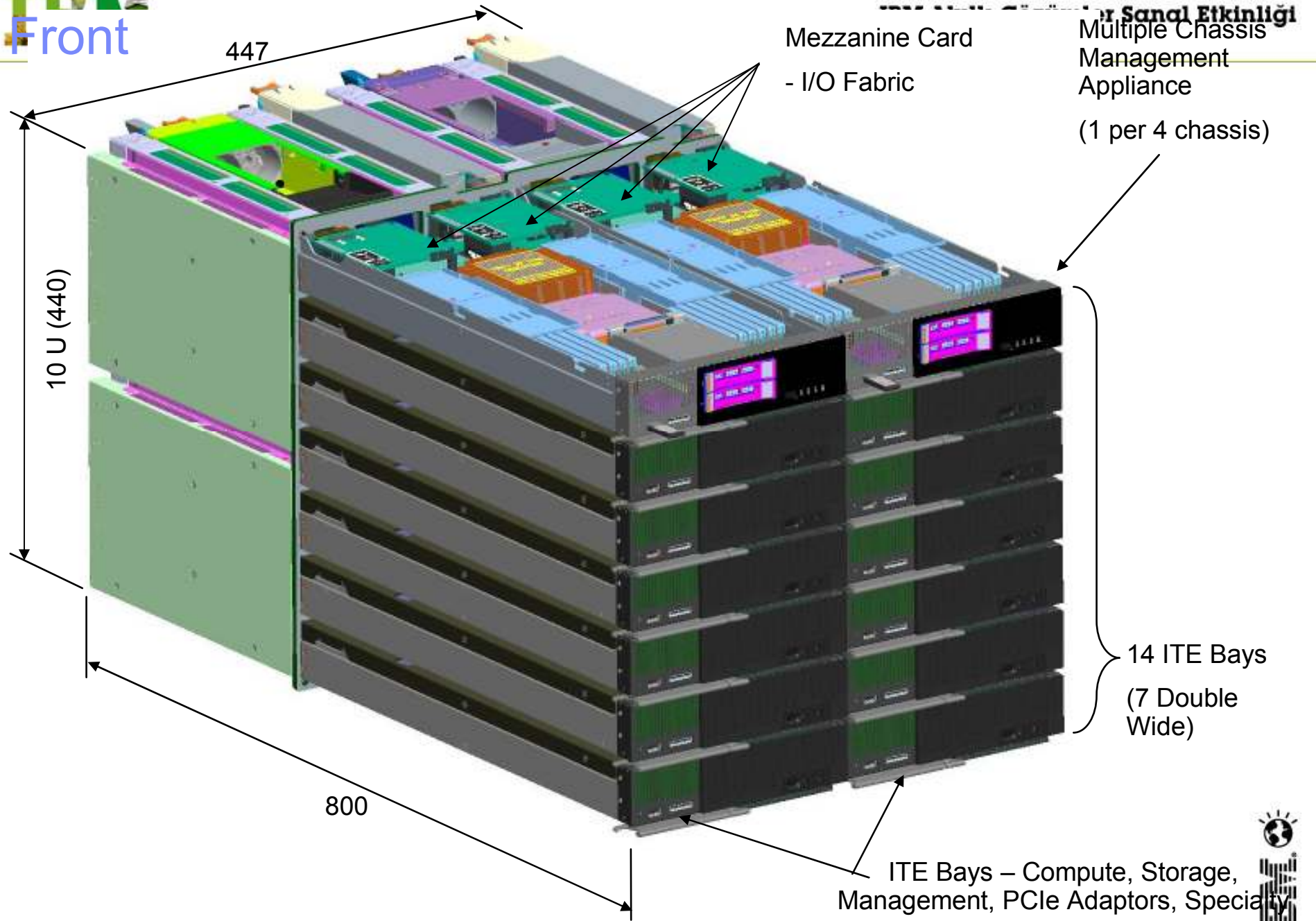


IBM PureFlex System?

PureFlex Şase:

- Entegre **Sunucu**, **storage** ve **ağ** bileşenleri
- Ön: Bilgi işlem ve yönetim çekmeceleri
- Arka: ScSE, CMM, güç & fan yuvaları
- Yönetime dedike appliance,
bütün bileşenleri tek ekrandan yönetme kabiliyeti







Flex Chassis

Systems Management Appliance



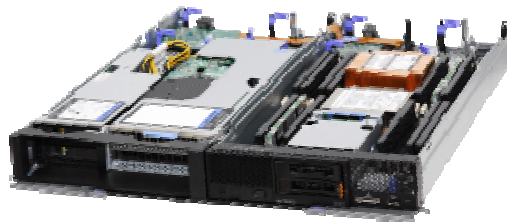
2S EP & EN Intel® Nodes



2S Power7® Node



2S Node with PME



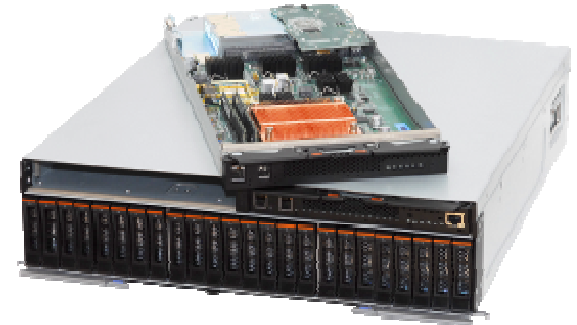
4S EP Intel® Node



4S Power7® Node



Storage Node with Controller



IBM Fiber and Ethernet Switches



IBM Flex System x240



System infrastructure

Standart boy sunucu modülü

2-soket Sandy Bridge-EP

24 LP DDR3 DIMMs /
1333MHz / 1600MHz

10Gb Converged LOM

2 hot swap 2.5" SAS/SATA
SSDs veya HDDs

Dual Enabled Hypervisor –
ESXi on Flash Key seçeneği



IBM Flex System x240

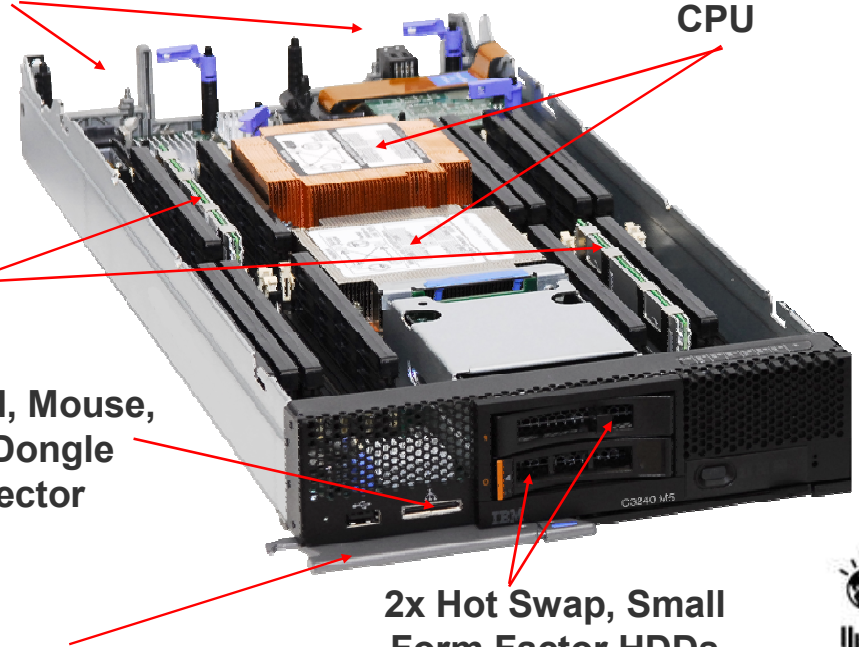
2x IO Mezzanine Cards

2x Intel E5 2600
CPU

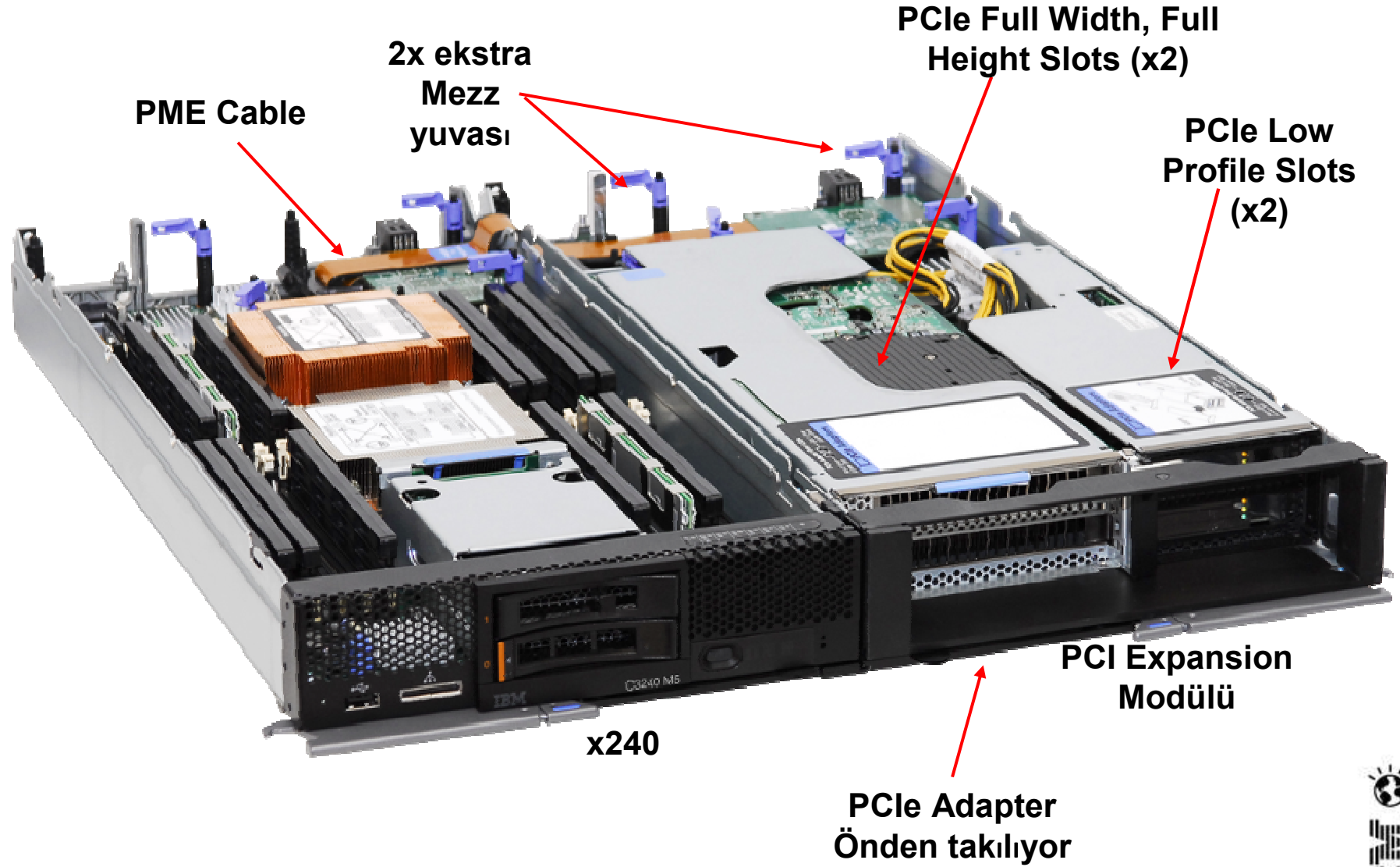
24 LP
DIMMs

Keyboard, Mouse,
Video Dongle
connector

2x Hot Swap, Small
Form Factor HDDs



Flex System PCIe Expansion Module





Increase Storage Capacity or create an entry Network Attach Storage (NAS) with Flex System Storage Expansion Node

IBM Flex System x240 With Storage Expansion Node

Increase storage in following workloads:

- Network Attach Storage (NAS)
- Video Security/Surveillance
- Transactional Data Server
- HADOOP Applications

Features

- Attaches to standard-width compute nodes
- Up to 12 SAS/SATA or SSD (**12 TB storage**)
- Enables Flex System migration platform for competitive 2U servers
- Provides a competitive alternative to HP's StorageWorks D2200sb Storage Blade



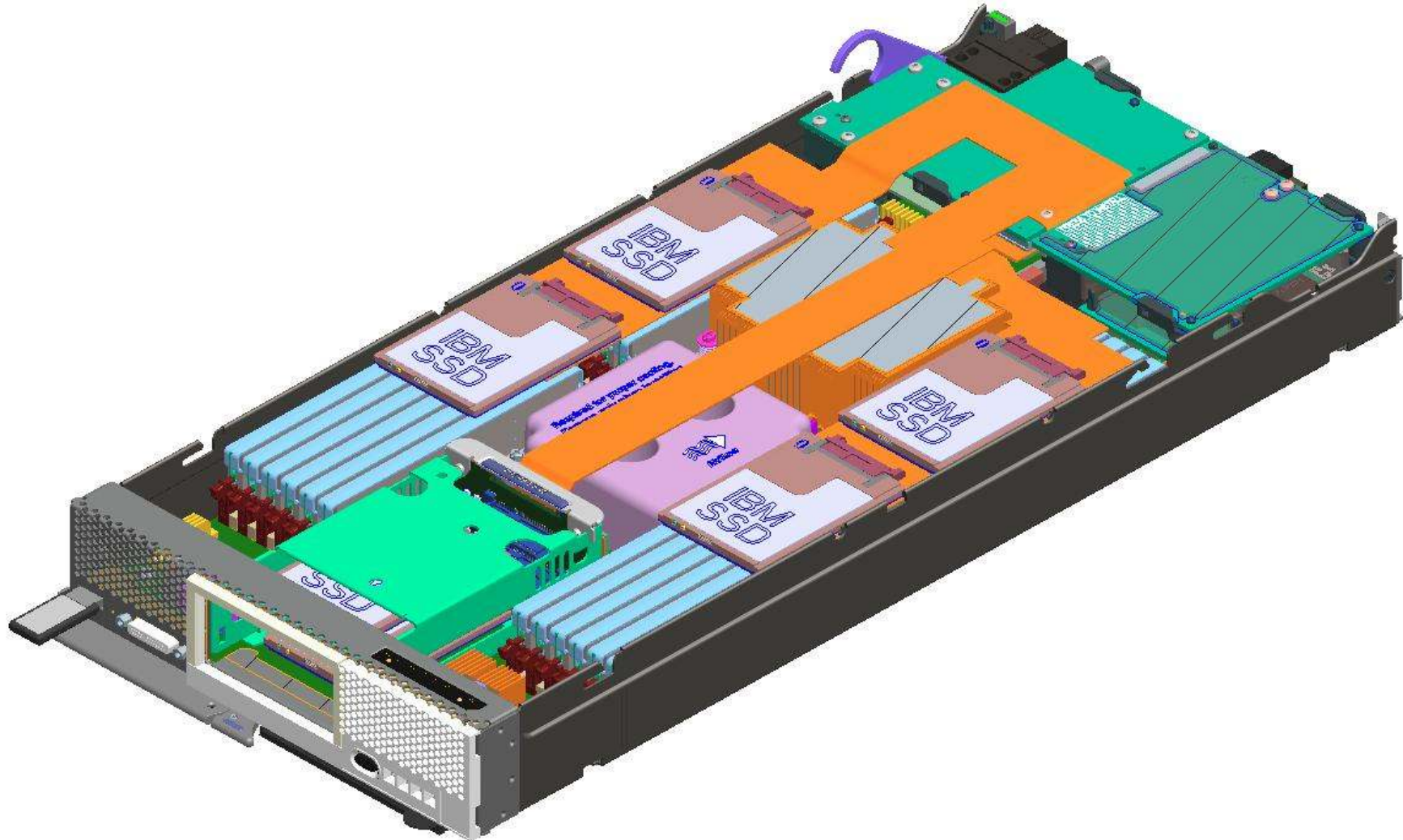
November availability

Faster recovery with
Hot-Swap
disk capability

Up to
12 TB
of storage



X240 & 8 SSDs ile Database Engine Concept



IBM Flex System x220



System infrastructure

2-socket Sandy Bridge-EN CPU



12 LP DDR3 DIMMs, 192GB,
384GB Max(32GB – post-GA),
1333MHz / 1600MHz



1Gb Converged LOM
FCoE/iSCSI protokol desteği



2 HS 2.5" SAS/SATA SSD veya
HDD



Redundant Hypervisor – ESXi
on Flash Key Option



x220 Compute Node



KVM bağlantısı

2x HS SFF HDD

IBM Flex System x440



System infrastructure

Tam genişlikte sunucu



4-socket Sandy Bridge-EP



48 LP DDR3 DIMMs / 1.5TB



4 x 10GbE



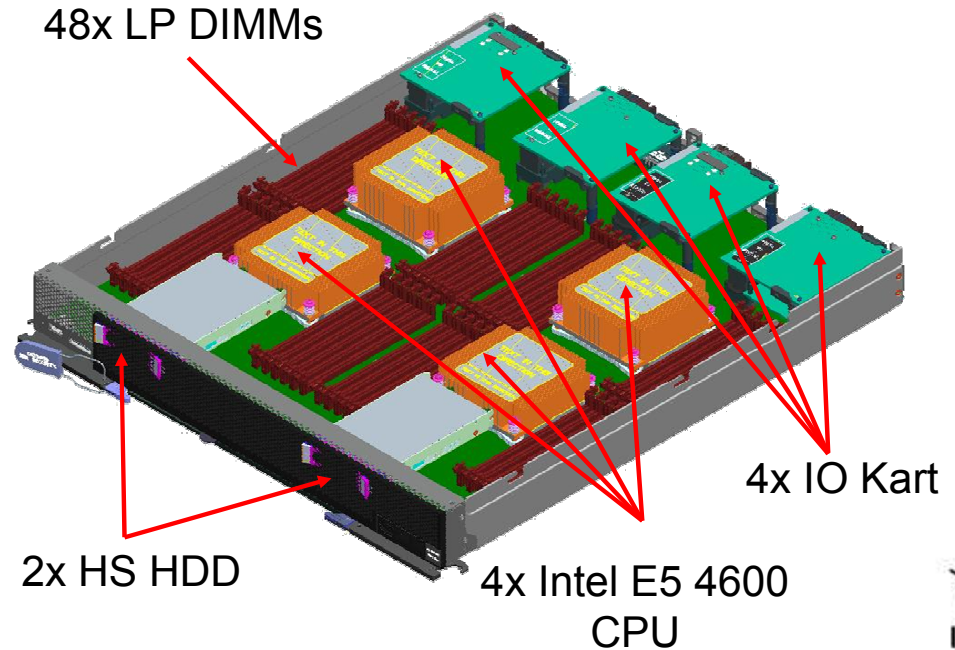
2x HS 2.5" SAS/SATA SSDs
veya HDDs



Dual Enabled Hypervisor –
ESXi on Flash Key Option



IBM Flex
System x440



IBM Flex System p260

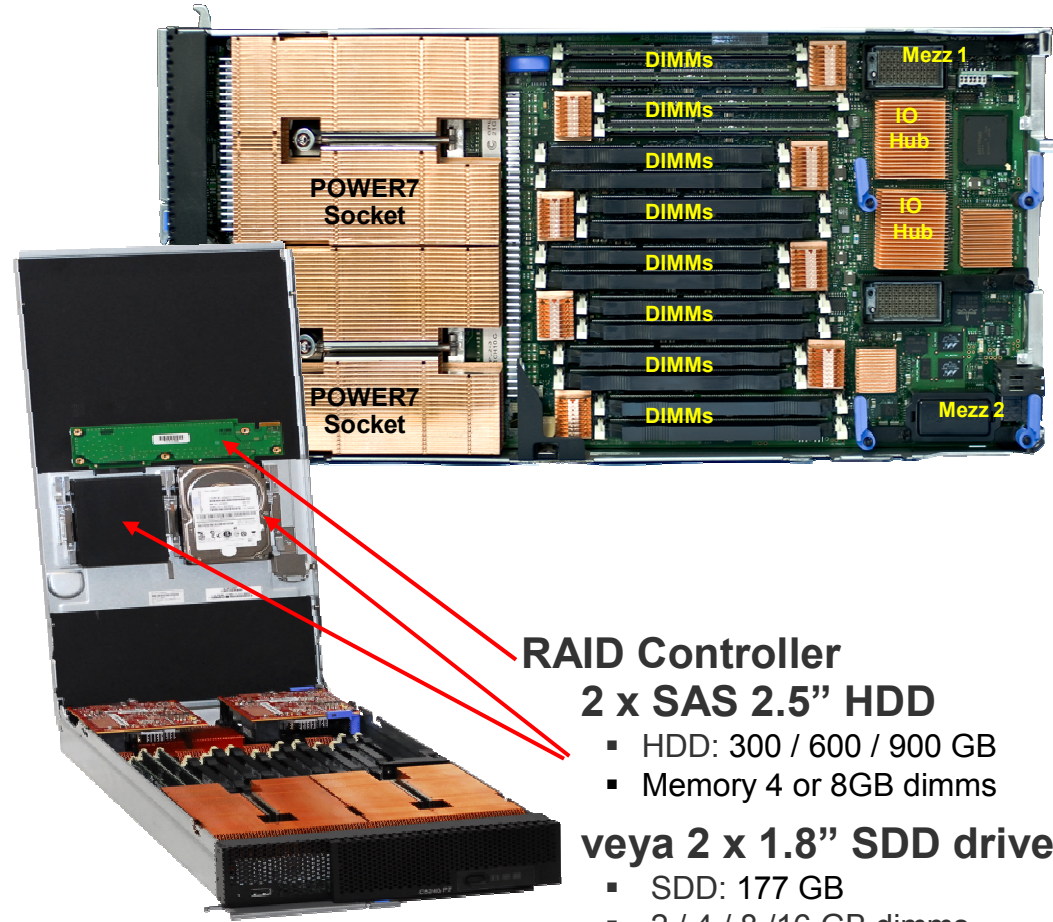


System infrastructure

- 2-socket POWER7®
- ◇
- 64-bit POWER7® processor
- ◇
- 16 core : 2 Socket x8 core
- ◇
- 16 DIMMs DDR3, 1066 MHz, 512GB Max
- ◇
- 2x Mezz cards



IBM Flex System p260



- RAID Controller**
- 2 x SAS 2.5'' HDD**
 - HDD: 300 / 600 / 900 GB
 - Memory 4 or 8GB dimms
- veya 2 x 1.8'' SDD drives**
 - SDD: 177 GB
 - 2 / 4 / 8 /16 GB dimms

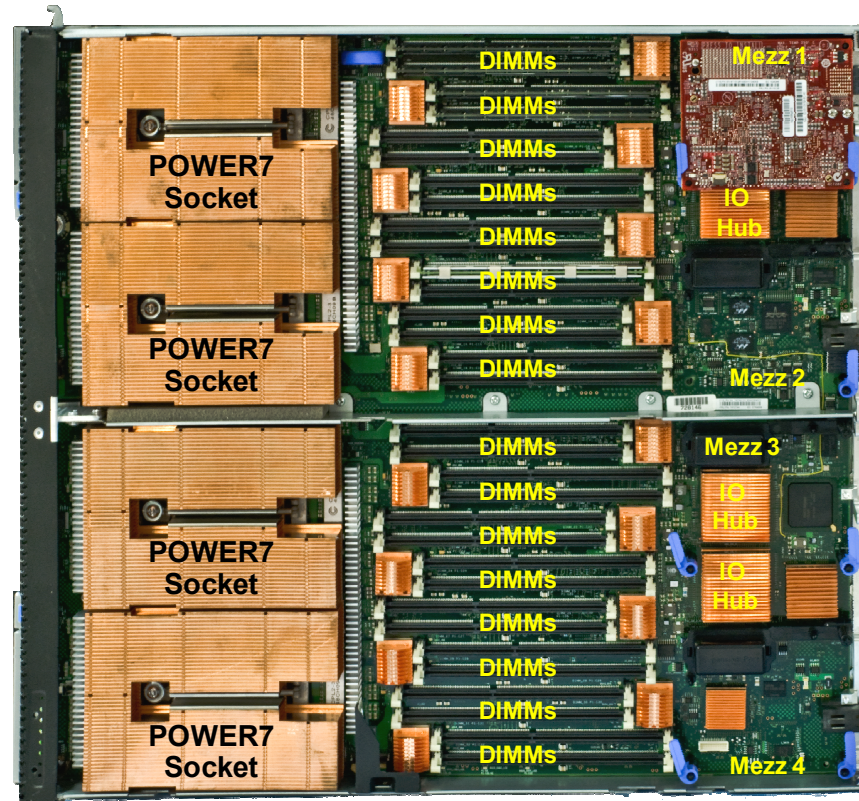
IBM Flex System p460

IBM Flex System p460



System infrastructure

- Full Width compute node
- ◇
- 4-socket POWER7®
- ◇
- 64-bit POWER7® processor
- ◇
- 32 core : 4 Socket x8 core
- ◇
- 32 DIMMs DDR3, 1066 MHz, 1 TB Max
- ◇
- Quad Mezz cards & IO Hubs



*HDD veya SSD – Kapak üzerinde (memory'lerin olduğu kısma denk geliyor)



IBM Flex System V7000

IBM Flex System V7000



System infrastructure



- **multi-vendor sanallaştırma teknolojisi**
 - 20,000+ kuruluş
 - transparent migration with no service disruption
- **EasyTier ile akıllı veri yerleştirme teknolojisi**
 - **%2 SSD kapasitesi ile 3 kata varan performance** artışı
 - Karışık işyükü ortamlarında, dinamik olarak ortamı öğrenme ve veri taşıma
- **İleri Fonksiyonlar**
 - Replikasyon
 - Thin Provisioning
 - Compression
 - * Clustering & 480 diske genişleme
 - * FC, FCoE & 10Gb iSCSI
 - * Disk sanallaştırma



Storage Esnekliği

Storage



Storage yönetimini tek kullanıcı arayüzü ve entegre yönetim konsolu ile **basitleştirir**

3rd-party disk storage'ların **sanallaştırılması**

varolan storage ortamına **kesintisiz migration**

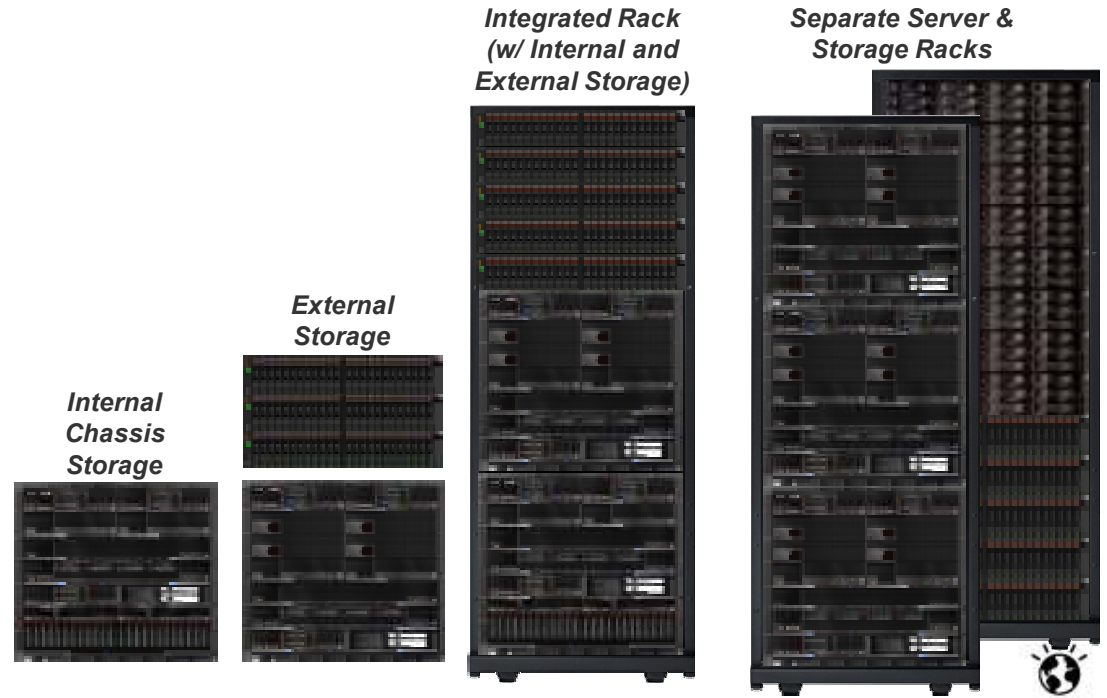
Karışık işyükleri için yüksek performans ve maliyeti dengeler

Business continuity ve DR için lokal ve remote replication ve snapshot fonksiyonları ile veriyi korur

System infrastructure

IBM Flex System Storwize yeteneklerini geliştirir: Maksimum performans ve esnekli, entegre yönetim ve kullanıcılar için kullanım kolaylığı

Sunucu ve storage seçenekleri



Network Donanımları



Entegre yönetim ile ağ kurulumunun basitleştirilmesi

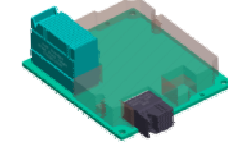
Convergence ve akıllı fabric izleme ile ağ basitliği

Yüksek IO çıkışı için yüksek ağ performansı

Varolan altyapı ile uyumluluk ve müşteri IO ihtiyaçlarına göre ölçeklenme

System infrastructure

IBM Networking Ürünleri

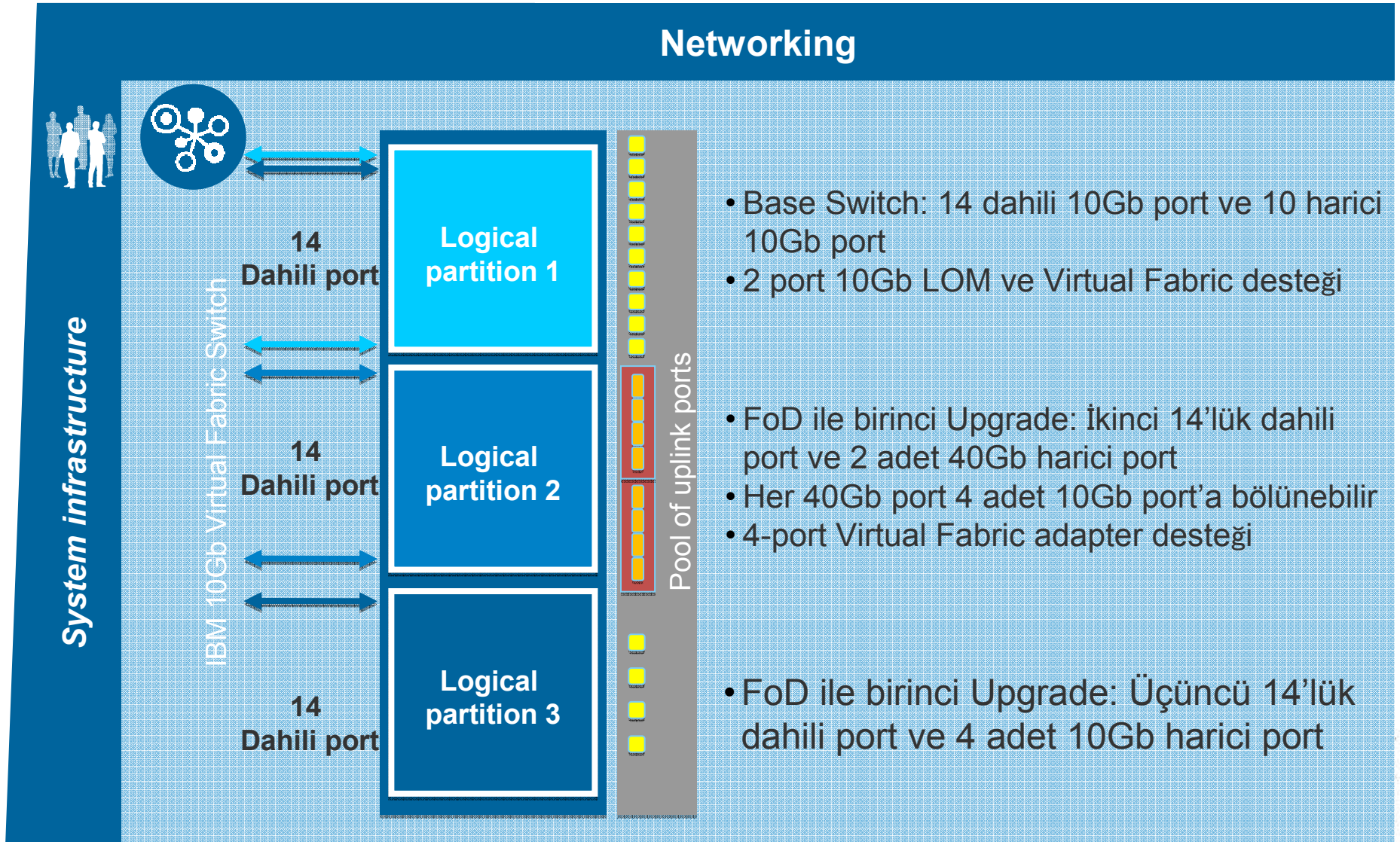


- Ölçeklenen Switch modülleri
- Her chassis için 4 adet ölçeklenen switch
- Her chassis için 16 adete kadar sanal switch partition'ları
- Feature on Demand ile port artırımları

	Ethernet & FCoE	Fibre Channel	InfiniBand
Switch	<ul style="list-style-type: none"> • 52 port 1Gb Switch Base: 14/10 (internal/external) Upgrade: 14/10 Upgrade: four 10Gb uplinks • 64 port 10Gb Ethernet Switch Base: 14/10 Upgrade: 14/8 (two 40Gb uplink) Upgrade: 14/4 • 1/10Gb Pass Thru 	<ul style="list-style-type: none"> • 20 port 8Gb • 20 port 8Gb Pass Thru • 48 port 16Gb 	<ul style="list-style-type: none"> • QDR Switch upgrade: FDR
Adapter	<ul style="list-style-type: none"> • 4 port 1Gb - Broadcom • 4 port 10Gb - Emulex • 2 port 10Gb - Mellanox 	<ul style="list-style-type: none"> • 2 port 8Gb - Qlogic • 2 port 8Gb - Emulex • 2 port 16Gb - Brocade 	<ul style="list-style-type: none"> • QDR & FDR Adapter

*Available at launch

Yeni nesil esneklik: bandgenişliği, port veya her ikisi için de ölçeklilik



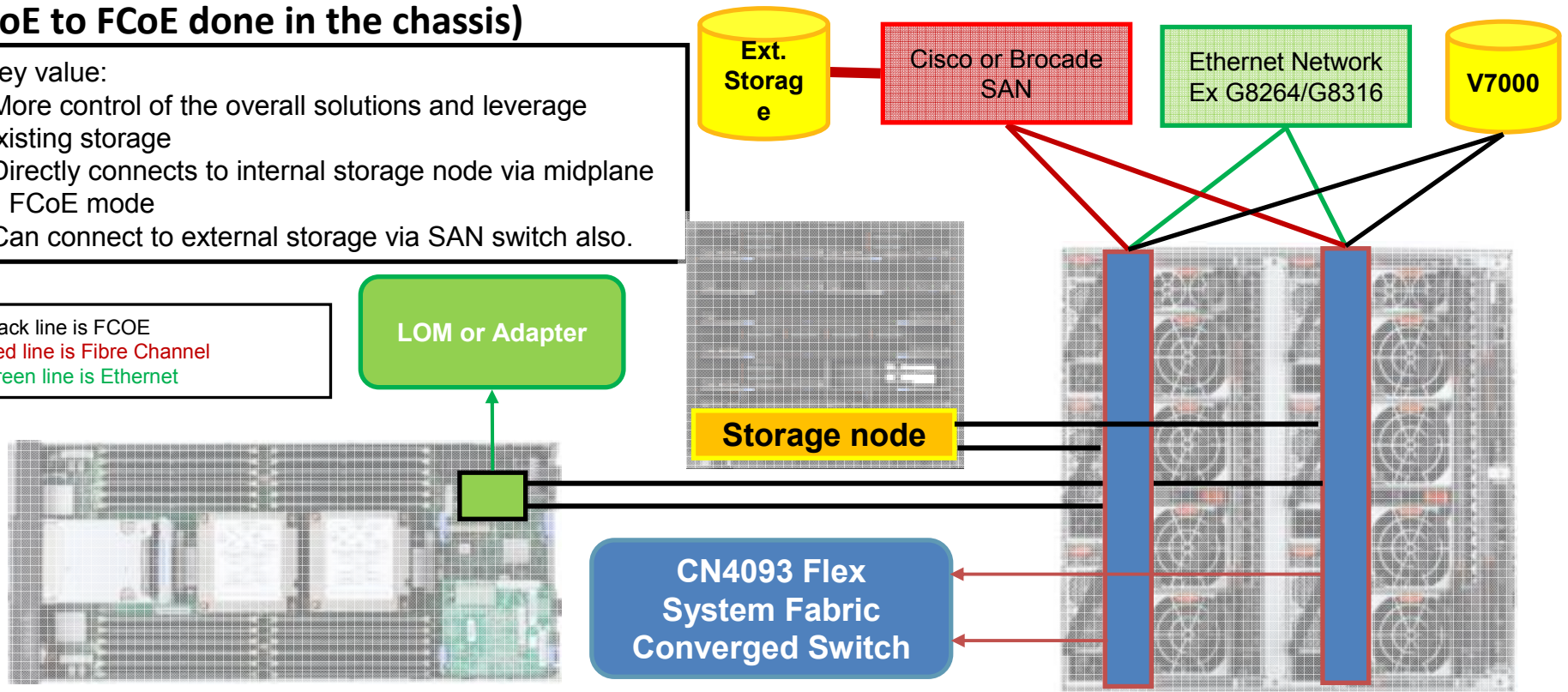
CN4093 FCoE - Reducing cost and complexity by leveraging integrated storage node

(FCoE to FCoE done in the chassis)

Key value:

- More control of the overall solutions and leverage existing storage
- Directly connects to internal storage node via midplane in FCoE mode
- Can connect to external storage via SAN switch also.

Black line is FCOE
Red line is Fibre Channel
Green line is Ethernet



Adapter	Integrated Switch	FCoE TOR Switch	SAN Switch	Storage Target	OS levels
LOM & CN4054 4-port adapter (BE3) pNIC and vNIC modes	CN4093 10Gb Switch NPIV mode	N/A	Cisco SAN Brocade SAN	FCoE: V7000 Storage node, FC: Storwize V7K, SVC, DS3K/5K, DS8K, Tape, XIV	Win2008, ESX 4/5, RHEL 5/6, SLES 10/11
CN4058 8-port adapter	CN4093 10Gb Switch NPIV mode	N/A	Cisco & Brocade SAN	FCoE: V7000 Storage node, FC: Storwize V7K, SVC, DS3K/5K, DS8K, Tape, XIV	AIX 6/7 VIOS 221/222 IBM i6/i7



Yönetim

Hem Fiziksel – Hem Sanal– Hem İş Yükleri yönetimi

Çoklu mimari yönetimi: POWER & x86

Hover over an object (“cursory select”) and for easier lighter response – progressively discloses a few key details that might lead to a full selection, or not



Click (fully select) an object displays the contextual details and actions

Contextual Details below

Contextual Actions to the right

- Find a... for IBM null 666666
- Connect... for "IBM null 666666"
- Service and Support
- Submit service request
- Release Management
- Show and install updates...
- Remote Access
- Security Control
- System Identification
- UD Flash
- General Actions

Contextual Details below

Type:	Server	Additional Properties:
Description:	IBM null 666666	Virtualization Properties
IP Address:	2002:905:120e:231:21a:64ff:fe56:c23, 192.168.122.L, 9.3.40.214	Operator:
Alias (display):	B	Support File
IP Hosts:	frn01blade2.rchland.ibm.com	
MAC Address:	00:1a:64:16:0r:25, 00:1a:64:16:0r:28	
Agent Time Zone Offset:		
System Board UUID:	3C661832-021E-821E-9839-D09622141188	
Architecture:	x86	
Chassis Name:	frn01amm	
Chassis Slot:	8	
Communication State:	Communication OK	
Event Actions Suspended:	False	
Machine Type:	BCH4	
Management Controller Serial Number:	YN305L7C310C	
Management Controller Test ID:	frn01BLADE2	
Manufacturer:	IBM	
Model:	1A2	
Hub-Node:	False	
Power State:	On	
Query Vital Properties Interval:	Every 8 hours	
Serial Number:	666666	
Server Type:	Physical Server	
State:	Started	



PureFlex “Chassis Map” – 6 farklı görüntü

“Status Information”



“Compliance, Firmware & Notifications”



“Hardware Access States”



“Highlight Front Panel LEDs”



“Component Names and Properties”

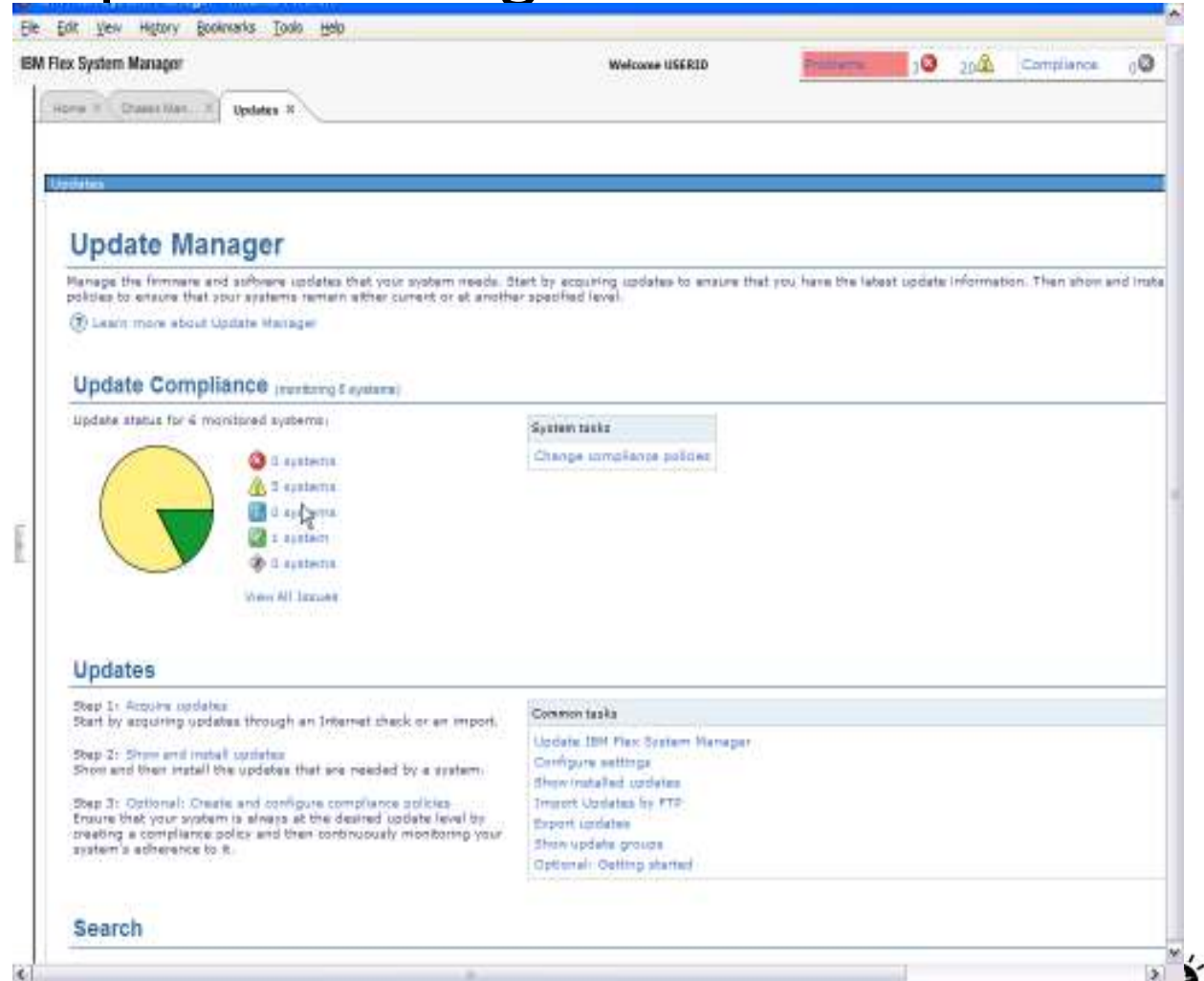


Thermal and Power Metrics



IBM Flex System - Update Manager

- Aynı arayüz üzerinden update'lerin yönetilmesi
 - Yeni update'ler otomatik kontrol edilir.
 - Sistemin için gerekli update'lerin gösterilmesi ve kurulması
- Sistem'de compliance takibi
 - Compliance politikaları ile bir sistemin güncelliğini kaybettiğinin otomatik bildirimi
 - Compliance sıkıntılarının gösterimi ve çözümü (eksik update'lerin kurulması ile)

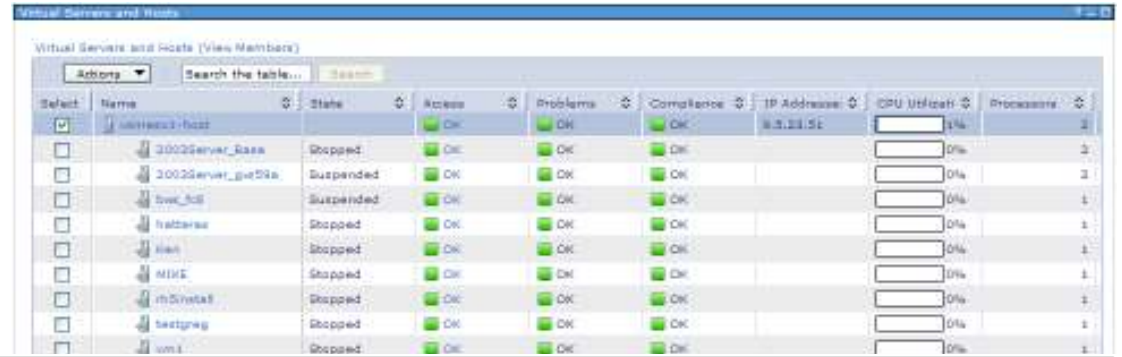


Sanallaştırma Yönetimi

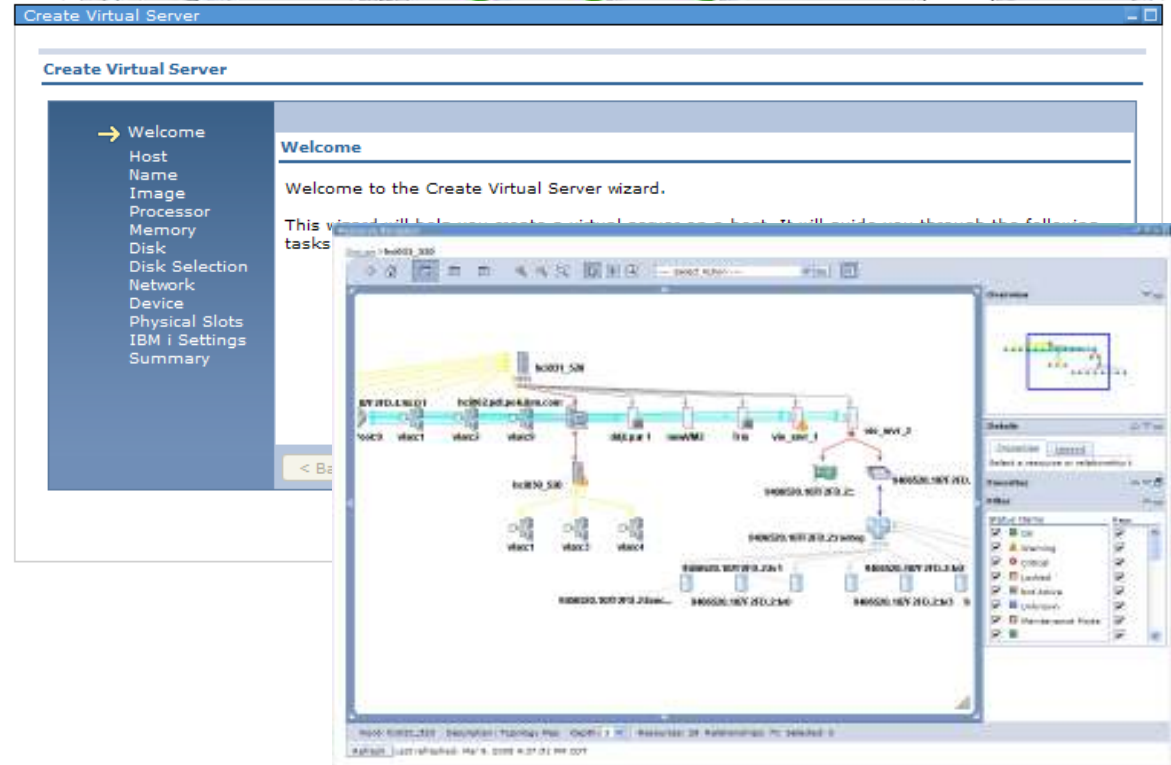
- Sanallaştırma Yönetimi
 - Sanal sunucuları ve hostları yönetim
 - HMC ve sistemler
 - VM Lifecycle management
 - Topology Map
 - İzleme ve otomasyon

- Sanal kaynakları değiştirme
 - Host'ları değiştirme
 - VM'leri değiştirme
 - GUI veya command line ile

- Relocate
 - Live relocation
 - Plan for relocation



Select	Name	State	Access	Problems	Compliance	IP Address	CPU Utilization	Processors
<input checked="" type="checkbox"/>	ibmtest1-host	Stopped	OK	OK	OK	9.5.23.51	1%	2
<input type="checkbox"/>	3002Server_Bass	Stopped	OK	OK	OK		0%	2
<input type="checkbox"/>	3002Server_gw50a	Suspended	OK	OK	OK		0%	2
<input type="checkbox"/>	hwc_fcl	Suspended	OK	OK	OK		0%	1
<input type="checkbox"/>	hdbase	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	hsk	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	MHS	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	rh5/vstaf	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	testmg	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	um1	Stopped	OK	OK	OK		0%	1



Create Virtual Server

Welcome to the Create Virtual Server wizard.

This wizard will help you create a new virtual server.

Tasks:

- Welcome
- Host
- Name
- Image
- Processor
- Memory
- Disk
- Disk Selection
- Network
- Device
- Physical Slots
- IBM i Settings
- Summary

Topology Map: A network diagram showing a central host (N001_5N) connected to various virtual servers (e.g., N001_5N.01, N001_5N.02, N001_5N.03, N001_5N.04, N001_5N.05, N001_5N.06, N001_5N.07, N001_5N.08, N001_5N.09, N001_5N.10, N001_5N.11, N001_5N.12, N001_5N.13, N001_5N.14, N001_5N.15, N001_5N.16, N001_5N.17, N001_5N.18, N001_5N.19, N001_5N.20, N001_5N.21, N001_5N.22, N001_5N.23, N001_5N.24, N001_5N.25, N001_5N.26, N001_5N.27, N001_5N.28, N001_5N.29, N001_5N.30, N001_5N.31, N001_5N.32, N001_5N.33, N001_5N.34, N001_5N.35, N001_5N.36, N001_5N.37, N001_5N.38, N001_5N.39, N001_5N.40, N001_5N.41, N001_5N.42, N001_5N.43, N001_5N.44, N001_5N.45, N001_5N.46, N001_5N.47, N001_5N.48, N001_5N.49, N001_5N.50, N001_5N.51, N001_5N.52, N001_5N.53, N001_5N.54, N001_5N.55, N001_5N.56, N001_5N.57, N001_5N.58, N001_5N.59, N001_5N.60, N001_5N.61, N001_5N.62, N001_5N.63, N001_5N.64, N001_5N.65, N001_5N.66, N001_5N.67, N001_5N.68, N001_5N.69, N001_5N.70, N001_5N.71, N001_5N.72, N001_5N.73, N001_5N.74, N001_5N.75, N001_5N.76, N001_5N.77, N001_5N.78, N001_5N.79, N001_5N.80, N001_5N.81, N001_5N.82, N001_5N.83, N001_5N.84, N001_5N.85, N001_5N.86, N001_5N.87, N001_5N.88, N001_5N.89, N001_5N.90, N001_5N.91, N001_5N.92, N001_5N.93, N001_5N.94, N001_5N.95, N001_5N.96, N001_5N.97, N001_5N.98, N001_5N.99, N001_5N.100).

Details: Select a resource or information.

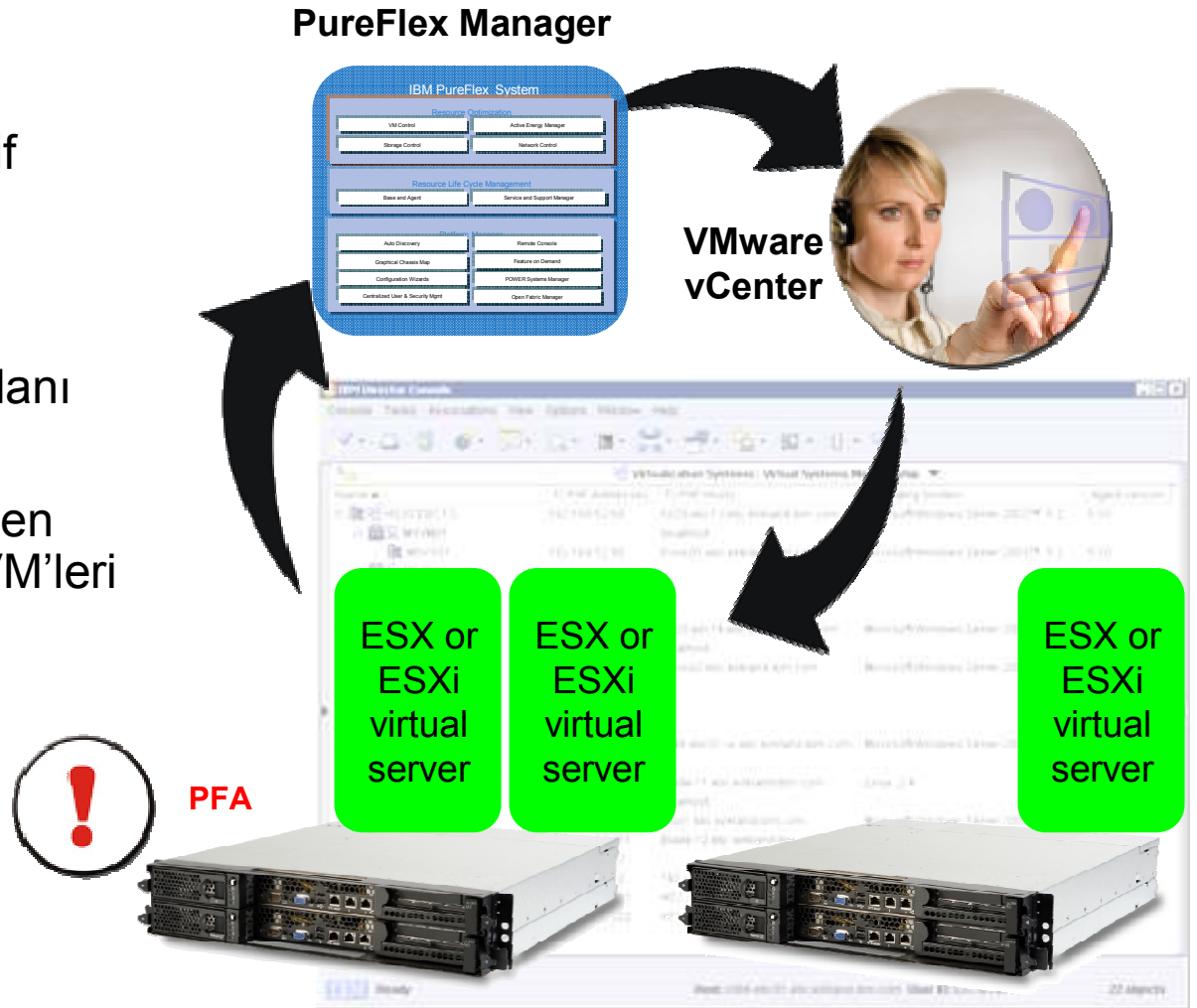
Properties: Select a resource or information.

IBM i Settings:

- CPU
- Memory
- Disk
- Network
- Device
- Physical Slots

PureFlex Availability Örneği – VMware ile

- VMware VM'leri barındıran fiziksel bir sunucuda proaktif arıza uyarısı PureFlex FSM tarafından alınır.
- VMControl etkilenen sanal sunucular için otomasyon planı oluşturur.
- Plan otomatik olarak etkilenen fiziksel sunucu üzerindeki VM'leri VMotion işlemi ile taşır





100'den fazlası PureSystems için iyileştirilmiş olan on binlerce uygulamayı çalıştırır





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