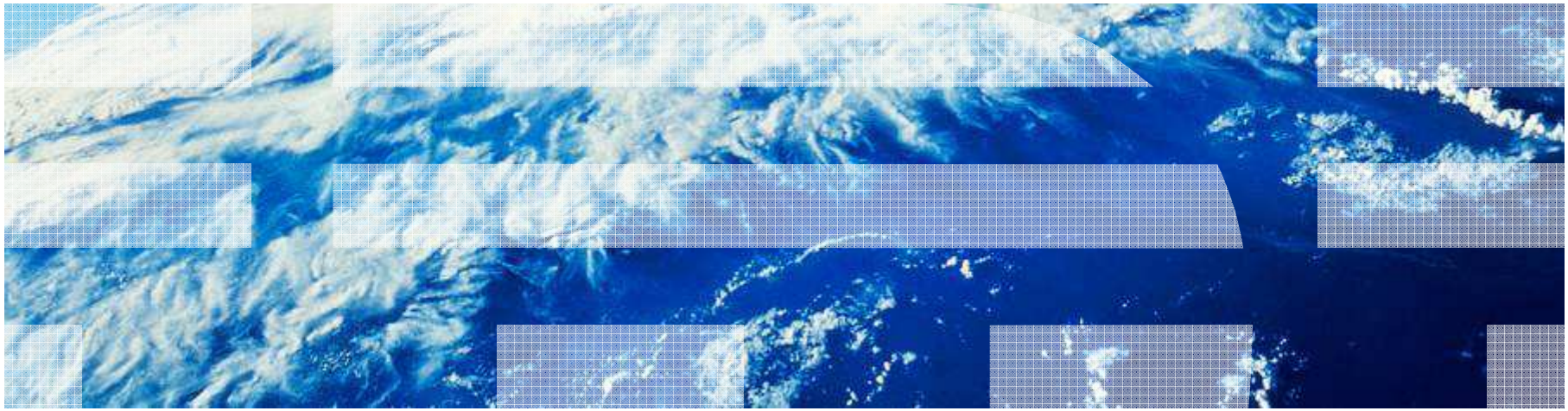
Introduction to PureApplication System

Chris Lin



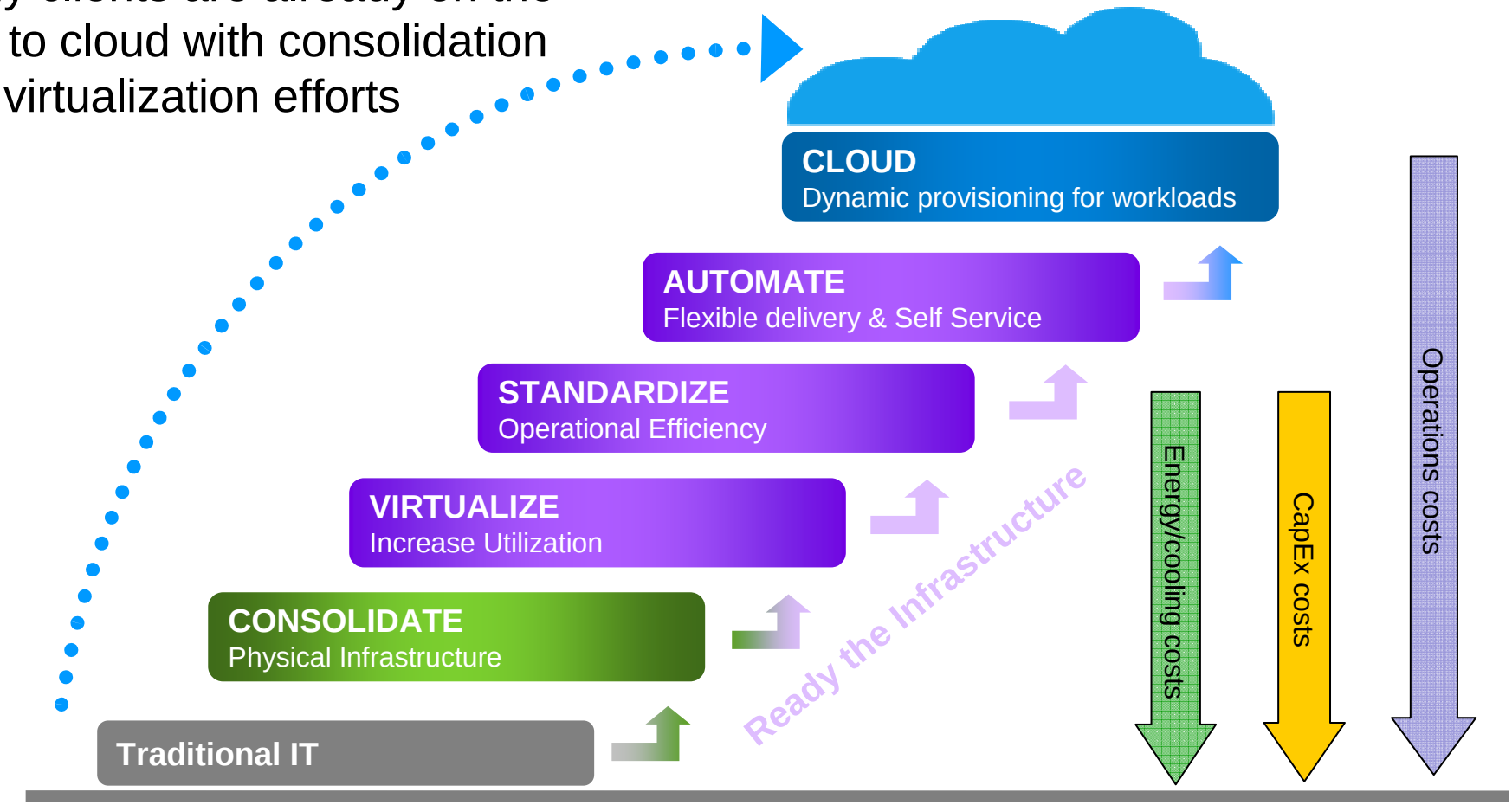
Agenda

- Cloud computing
- IBM PureSystem
- IBM PureApplication System
- IBM PureApplication System - Deployment Models
- IBM PureApplication System - Business Value
- IBM PureApplication System - Summary
- Q & A

Cloud Computing

Movement from traditional environments to Cloud One Step or An Evolution

Many clients are already on the way to cloud with consolidation and virtualization efforts



Cloud computing is delivering value today

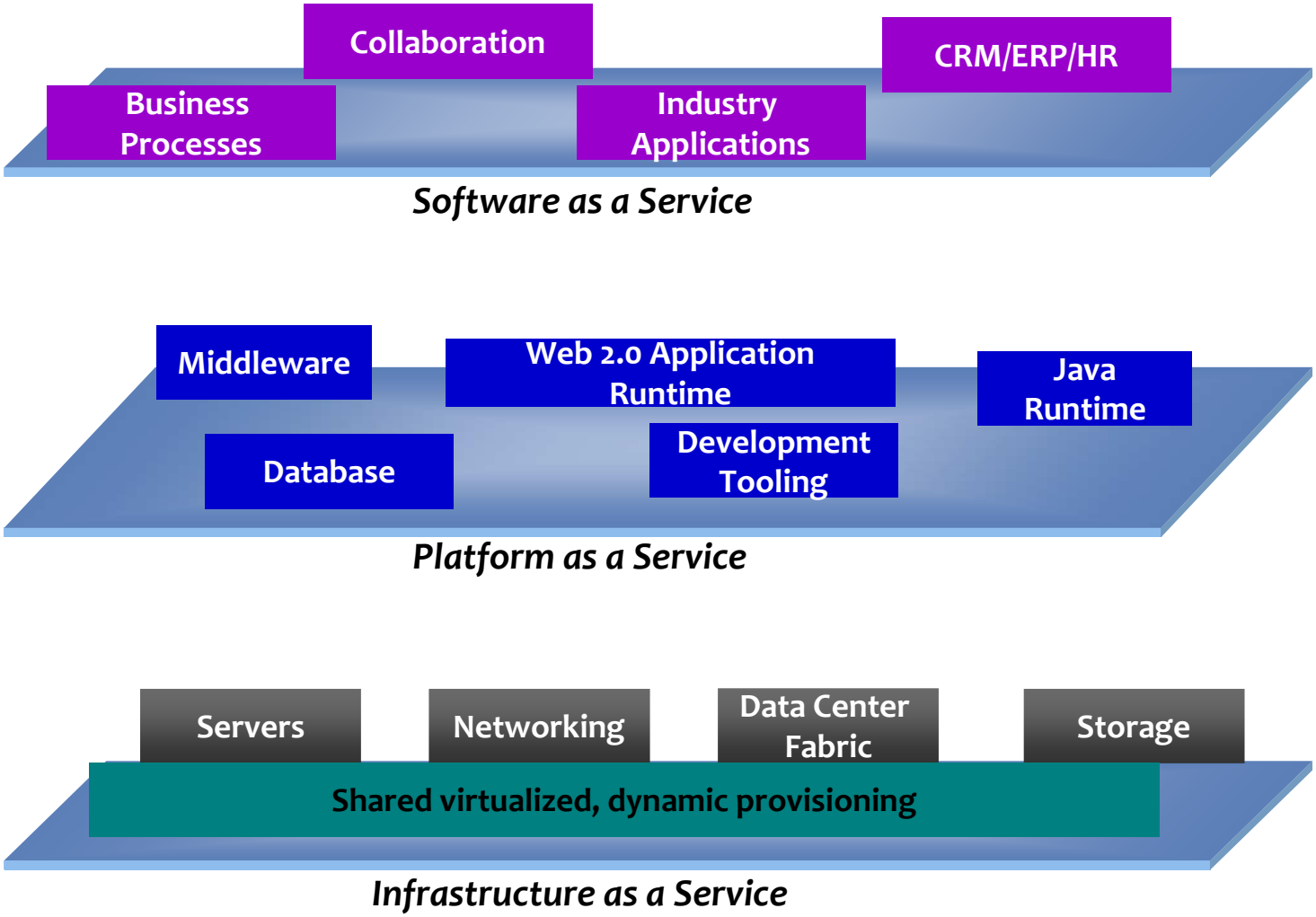
- **Cloud is:**
  - *A new consumption and delivery model*

- **Cloud addresses:**
  - *Scale*
  - *Utilization*
  - *Self-service*
  - *IT agility, flexibility and delivery of value*
  - *Cost reduction*

- Cloud represents:
  - *The industrialization of delivery for IT supported services*

- **Cloud includes:**
  - *Delivery models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS) and Business Process as a Service*
  - *Focus on the End user – self service delivery*

Deliver Model:



IBM PureSystem

IBM Offering – Puresystem family

A family of expert integrated systems with:

- ***Built-in expertise*** to address complex business and operational tasks automatically
- ***Integration by design*** to tune systems for optimal performance and efficiency
- ***Simplified experience*** from design to purchase to maintenance

PureFlex

Infrastructure

PureApplication

Application Platform

PureData

Data Platform

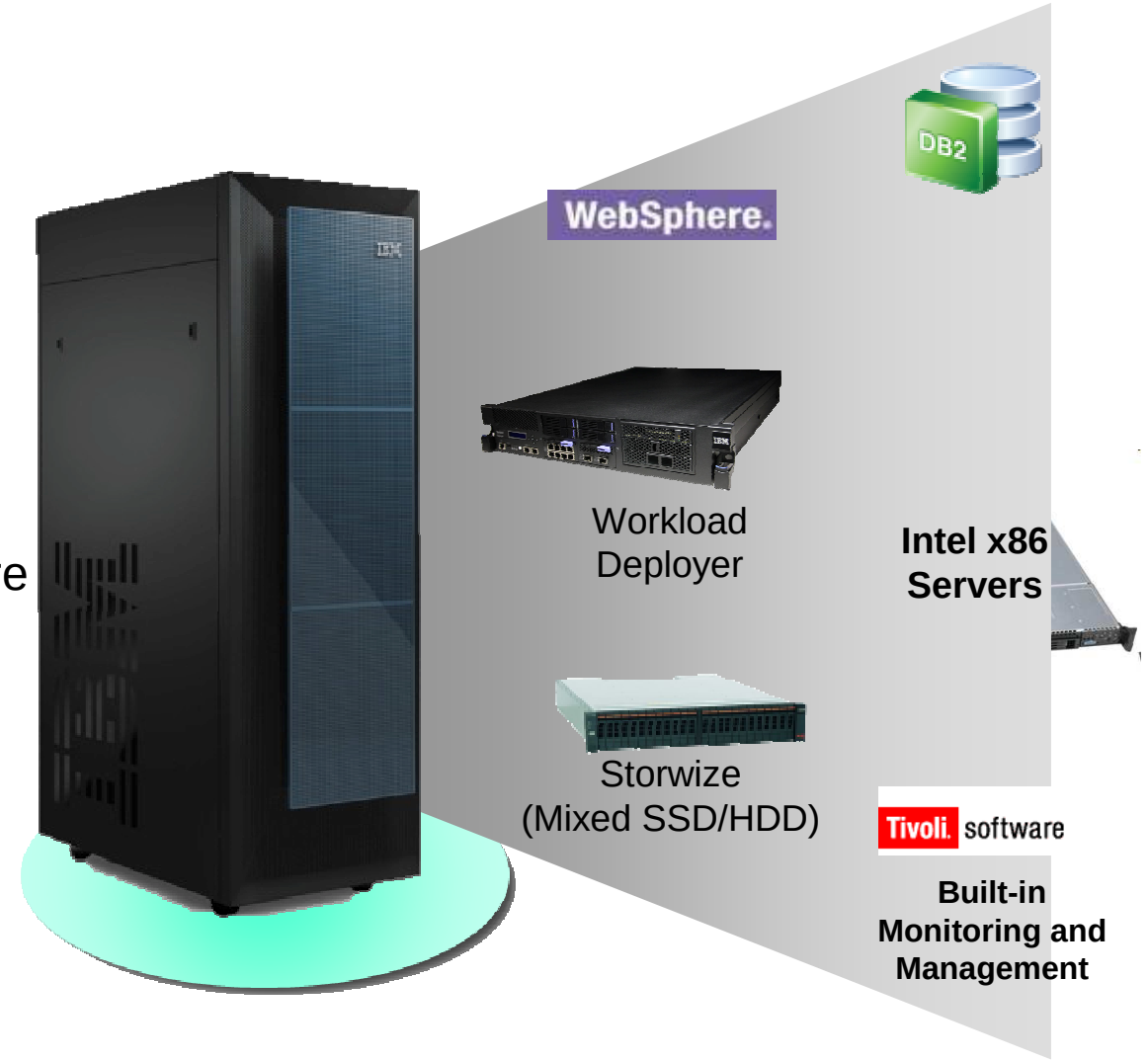
IBM PureApplication

IBM PureApplication System

Virtualized Workloads
- Integrated Middleware
- Elastic Data
- Application-aware workload management

Scalable Infrastructure
- Workload Optimized Hardware
- Virtualized Storage
- Optimized Networking

Integrated Delivery
- Factory Built and Wired
- Optimized and Tuned
- Simplified Management



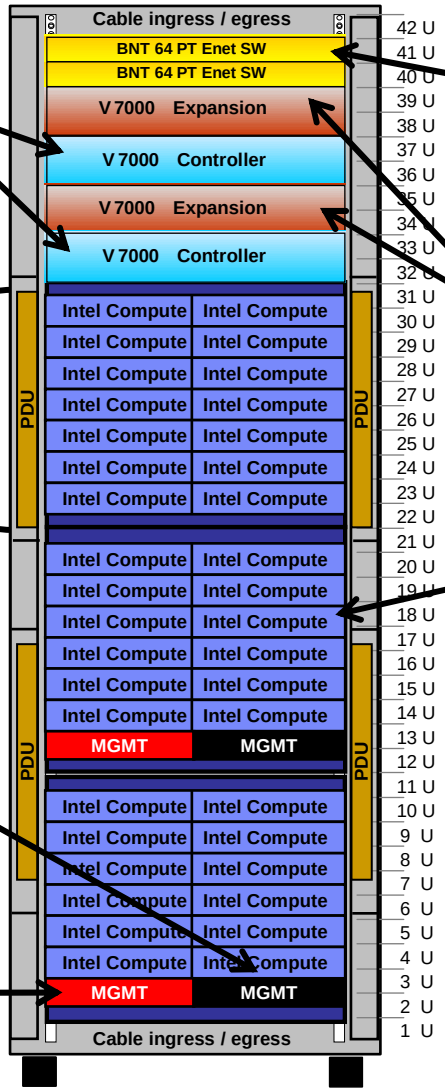
IBM PureApplication System Full Rack High Performance Model

Storage Controller
IBM Storwize V7000 Disk System
4 x 400 GB SAS SSD per enclosure
20 x 600 GB SAS HDD per enclosure

New Chassis
Common Management Module
2x 10Gb Ethernet Switch
2x 16 Gb FC Switch

PureApplication System Management Node
IBM Workload Deployer

VM Management Node



Top of Rack Switches
BLADE Network Technologies Top of Rack Switches
Customer Data Center & Rack-to-rack communications

V7000 Disk Expansion
Per enclosure:
4 x 400 GB SAS SSD
20 x 600 GB SAS HDD

Intel Compute
2.6 GHz 8C Intel processor, 110 W
256 KB L2 per core
4 MB eDRAM L3 per core
2x 4 Port 10 GbE
2x 2 Port 8 Gb/s FC

Overall	
Power	~30 KW
Cores	608 Cores
Memory	9.7 TB
SSD	6.4 TB (unformatted)
Storage	48.0 TB (unformatted)

Pre-Entitled Software Shipped with PureApplication System

- Clients have entitlement to run the following S/W on the full capacity of the System
  - Virtual Systems:
    - IBM System Image for Red Hat Systems 1.0.0.4 (includes Red Hat V6.2)
    - IBM WebSphere Application Server Hypervisor Edition v7.0.0.21 – includes Intelligent Management Pack
    - IBM WebSphere Application Server Hypervisor Edition v8.0.0.2 – includes Intelligent Management Pack
    - IBM WebSphere Application Server Hypervisor Edition v8 .5 – includes Intelligent Management Pack
    - DB2 V9.7-FP5, V10 Enterprise Server Edition HV
    - Automation Framework HV (for migrating applications)
  - Virtual Application Patterns:
    - Java Pattern v1.0.0.0 (Java 7 SDK)
    - IBM Pattern for Web Applications v1.0.0.4 (with WAS v7)
    - IBM Web Application Pattern v2 .0.0.1 (with WAS v8)
    - IBM Transactional Database Pattern v1.1.0.1
    - IBM Data Mart Pattern v1.1.0.1

Non-Entitled Software Optimized for PureApplication System

- **PureApplication System supported images and workloads (all based on RHEL 6.2)**
  - WMQ HV 7.0.1
  - WMB HV v8.0
  - IBM Business Intelligence Pattern for Cloud (Cognos)
  - IBM Messaging Pattern v2
  - BPM Pattern
  - Informix Pattern
  - Predictive Enterprise Pattern
  - SOA Policy Managed Gateway, includes WSRR

• Shipped separately
• Need entitlement
• Subject to change

Section

IBM PureApplication System - Deployment Models

What is an Software Application pattern?

- A Software Application pattern is…

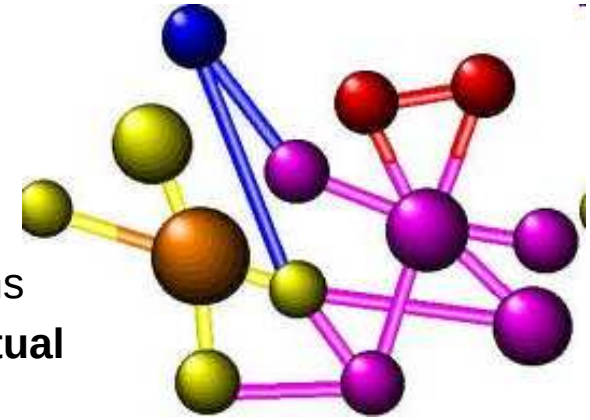
  a model of a multi-server environment

  …represented as a file

  …which can be interpreted by a deployment tool

  …and shared between users/teams

- Software Application Patterns…
  - Can be created in Pure Application System
  - Can be exported and imported for sharing across systems
  - Are available in two types: **Virtual Applications** and **Virtual Systems**



Patterns on Pure Application System

Aligns development and deployment with integrated expertise while protecting existing application investments

Virtual Application Patterns

- Highly automated deployments using expert patterns
- Business policy driven elasticity
- Built for the cloud environment
- Leverages elastic workload management services

Workload Platform Services

Best TCO
cloud applications

Virtual System Patterns

- Packaged for virtual environments
- Automated deployment of middleware topologies
- Traditional administration and management model

Virtualized Middleware Services

Improved TCO
virtualized applications

OS Images for Existing Software

- Standard software installation and configuration on OS
- Images created through extend/capture
- Traditional administration and management model

Virtualized Infrastructure Services

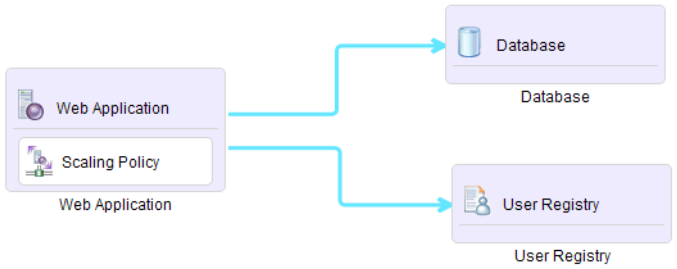
Standard TCO
existing applications

Patterns: Virtual Application Patterns

Virtual Application Pattern

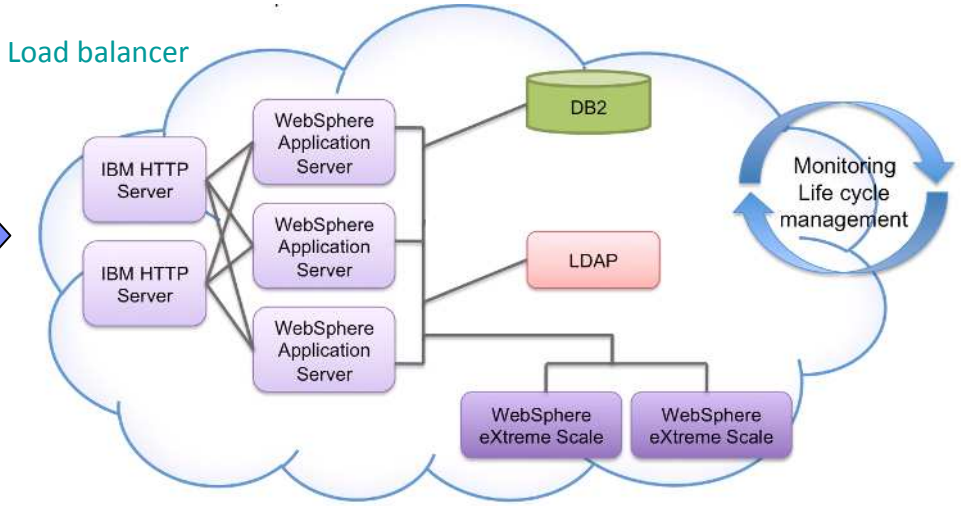
- A Virtual Application represents a collection of application components, behavioral policies and their relationships
  - Core components of the pattern include web applications, databases, queues, connections to existing resources, business process models, batch jobs, mediations, etc.
  - Core policies of the pattern include high availability, SLAs, security, multi-tenancy, isolation, etc.

Virtual Application Pattern



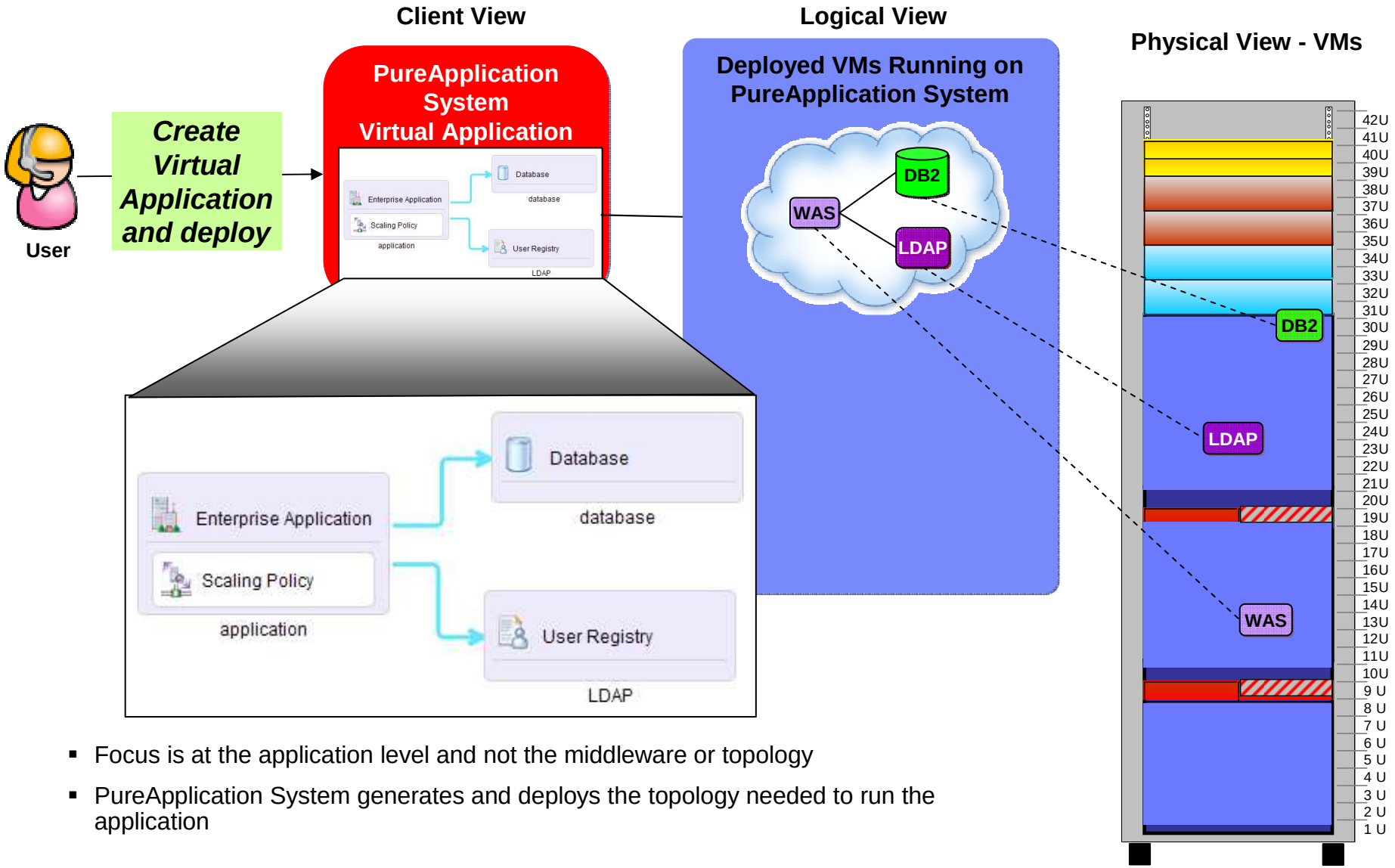
Initial instance = 3

Virtual Application Instance



WAS cluster configured with session replication

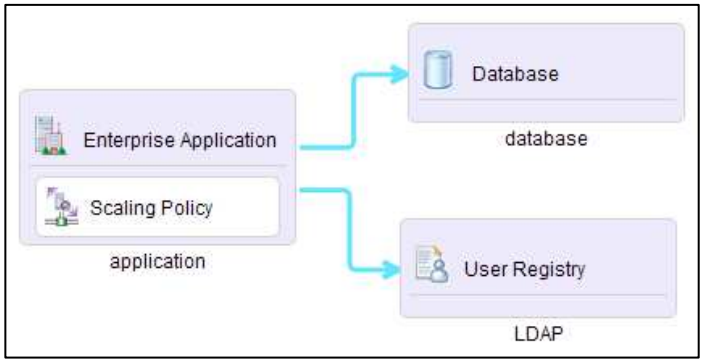
Virtual Application Views



- Focus is at the application level and not the middleware or topology
- PureApplication System generates and deploys the topology needed to run the application

Web App and Database Virtual Applications

- Pattern for Web Applications consists of application support based on
  - WebSphere Application Server
  - Tivoli Directory Server
  - WebSphere eXtreme Scale
  - Connectors to remote systems
    - MQ, DB2, DB2/z, CICS, IMS, 3rd party DB (Oracle), LDAP
- Patterns for Database provides support for DB2 in a Database-as-a-Service model
  - Transactional Database pattern
  - Data Mart pattern
- Virtual Applications are a PaaS solution in which your application takes center stage
  - Define application attributes and QoS through declarative policies
  - PureApplication System creates and configures the deployment environment to run your applications

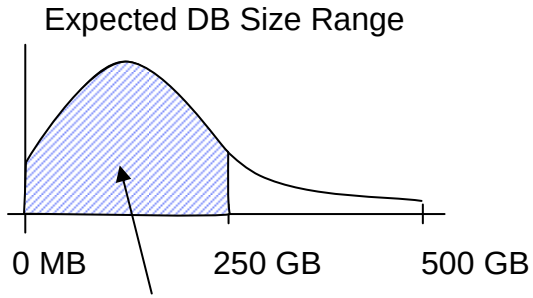


Virtual Applications support Failure recovery and HA/Auto-Scaling*

PureApplication System Supports Database As A Service (DBaaS)

General Database Landscape

- DB sizes ranging from 0MB to 500GB
- 1000's of MySQL, Sybase and Oracle DBs
- 80% of DB2 DBs are less than 250GB

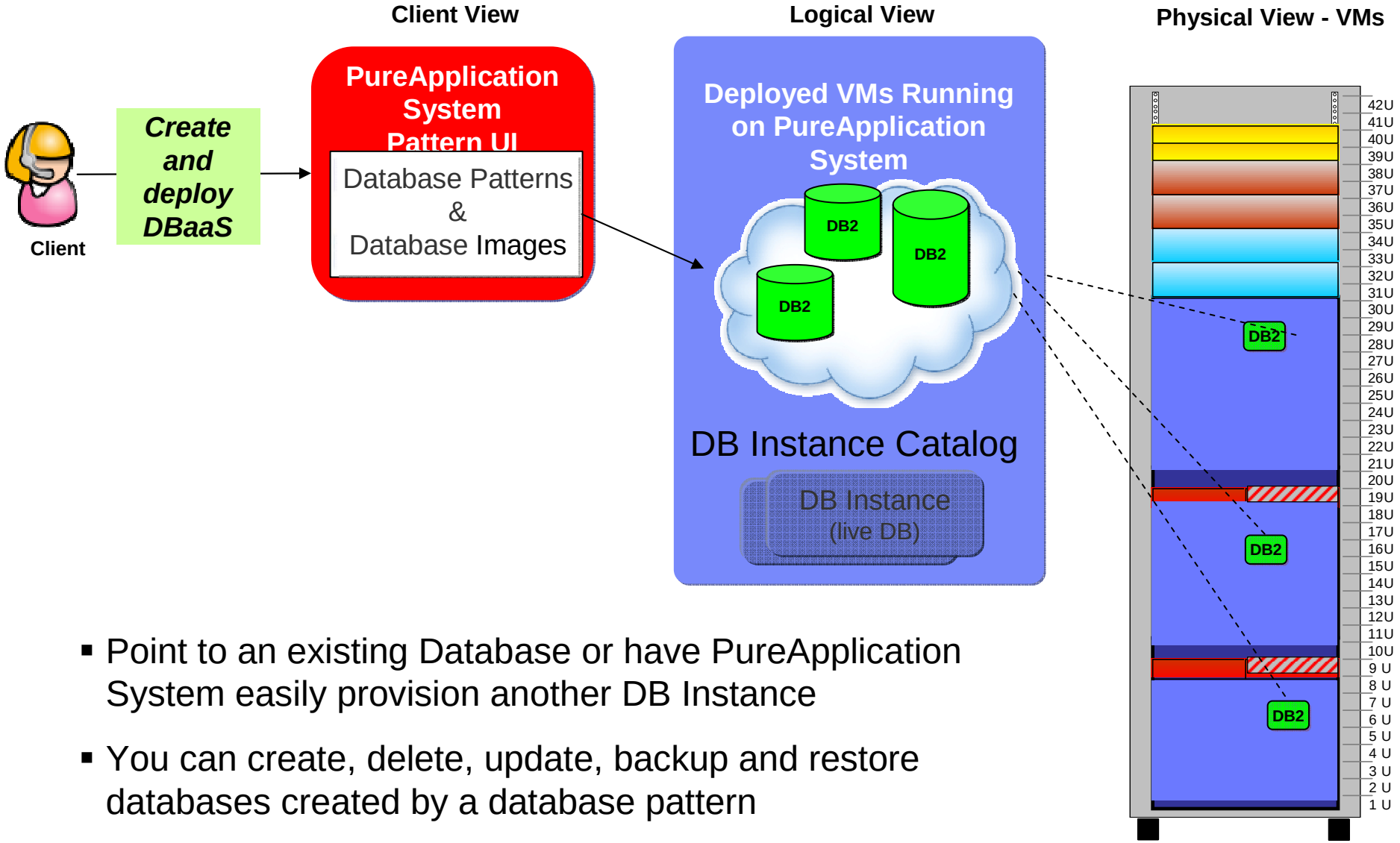


- 80% by frequency
- 30GB average size

DBaaS Goals

1. **Dramatic simplification of Database**
   - Deployment agility (self-service front end, hibernate/wakeup, etc)
   - Implicit feature enablement (e.g. security)
   - Improve the "field quality" of database applications by enforcing best practices implementations
2. **Industrialization of DB hosting** (Data Center Economics)
   - Automated operations
   - Standards
   - Isolation
3. **Improve speed of adoption**
   - Make it trivial to get a new database
   - Easy movement of Databases into IBM's DBaaS

PureApplication Database as a Service



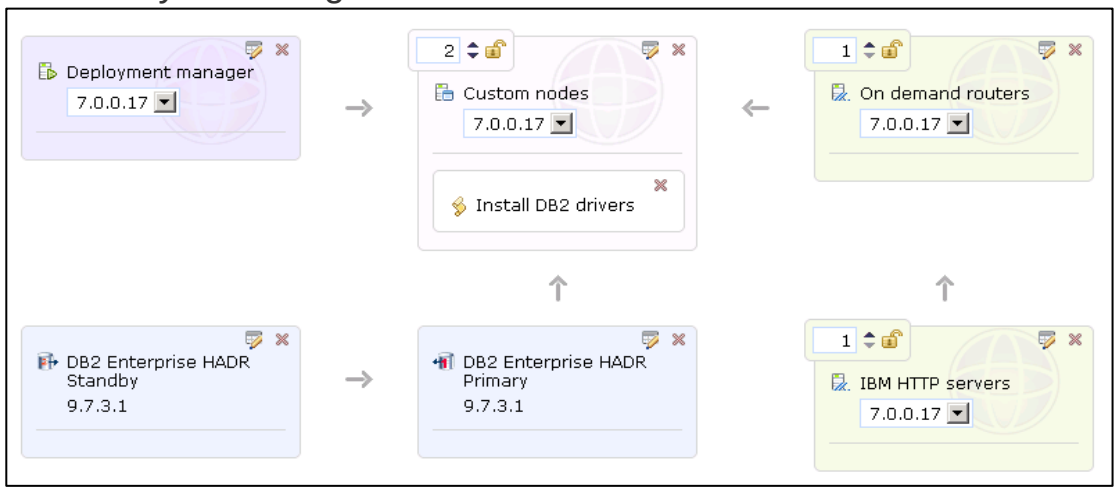
- Point to an existing Database or have PureApplication System easily provision another DB Instance
- You can create, delete, update, backup and restore databases created by a database pattern

Patterns: Virtual Systems Patterns

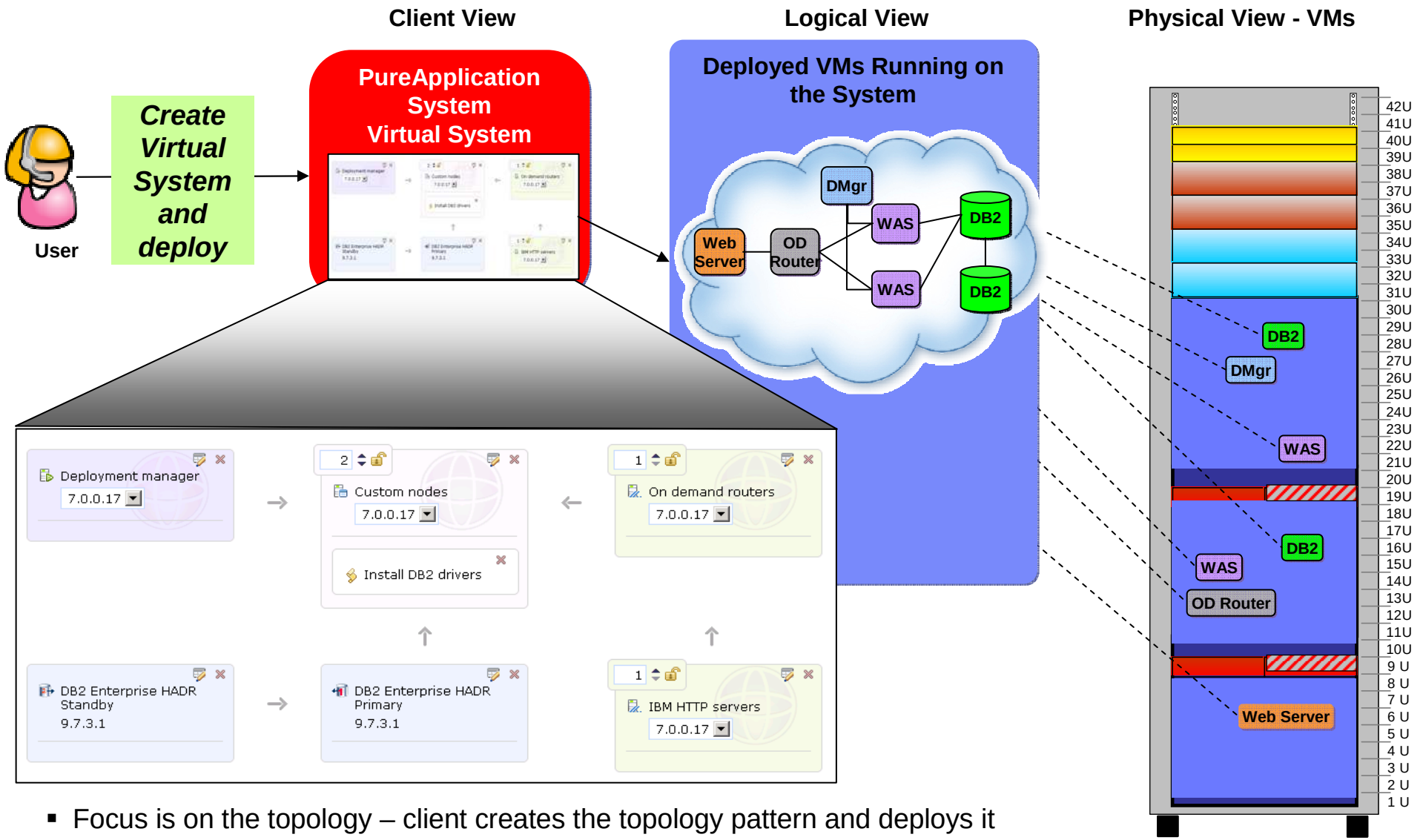
Virtual Systems - Overview

- Virtual Systems patterns are a logical representation of a recurring topology for a given set of deployment requirements
  - For example: WebSphere Application Server Cluster pattern containing Deployment Manager, one or more Custom Nodes, IBM Http Server and configuration scripts for installing applications to the topology
- PureApplication System includes pre-loaded Virtual System patterns based on years of best practices

Virtual System Diagram



Virtual System Views

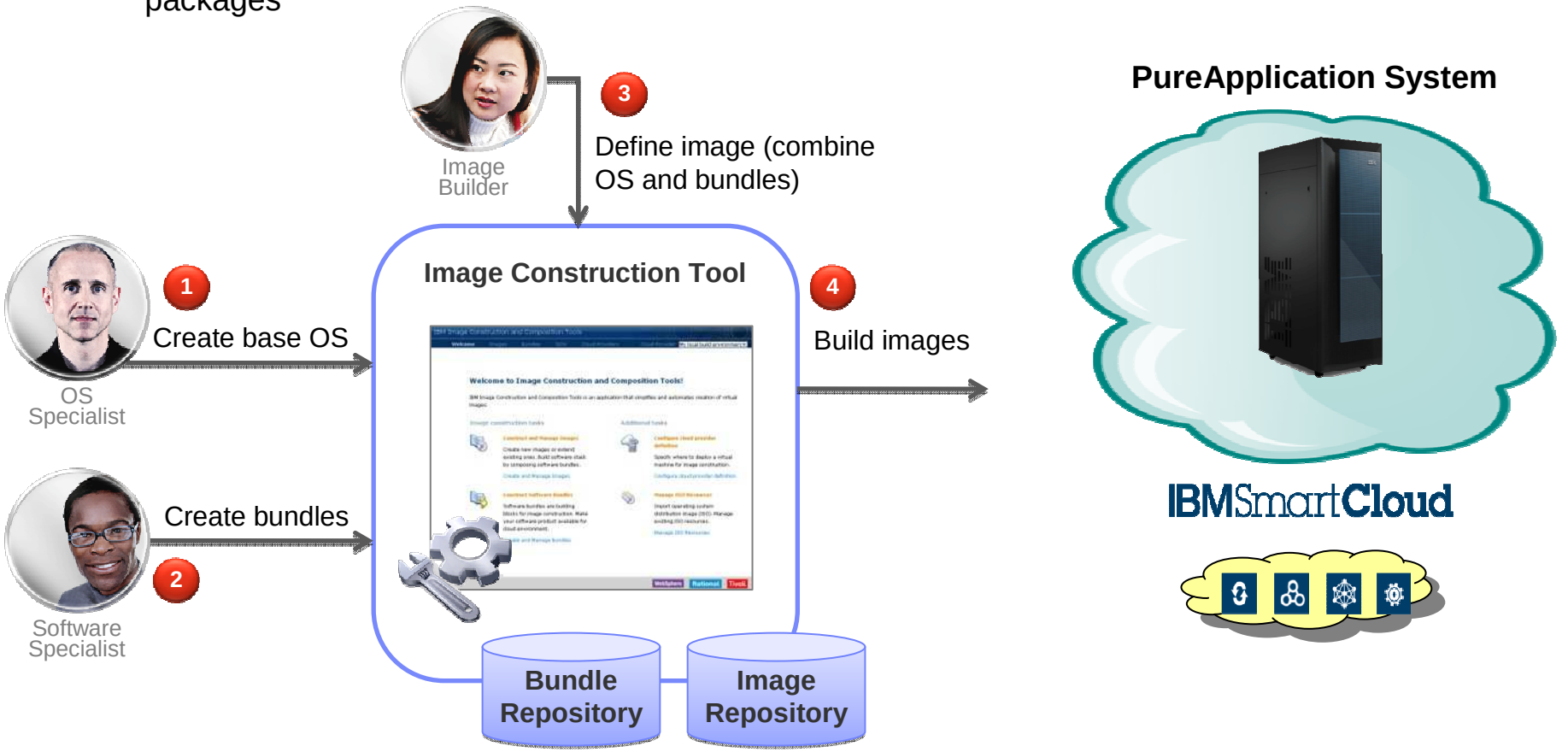


- Focus is on the topology – client creates the topology pattern and deploys it
- Application and configuration scripts are added to the Virtual System pattern

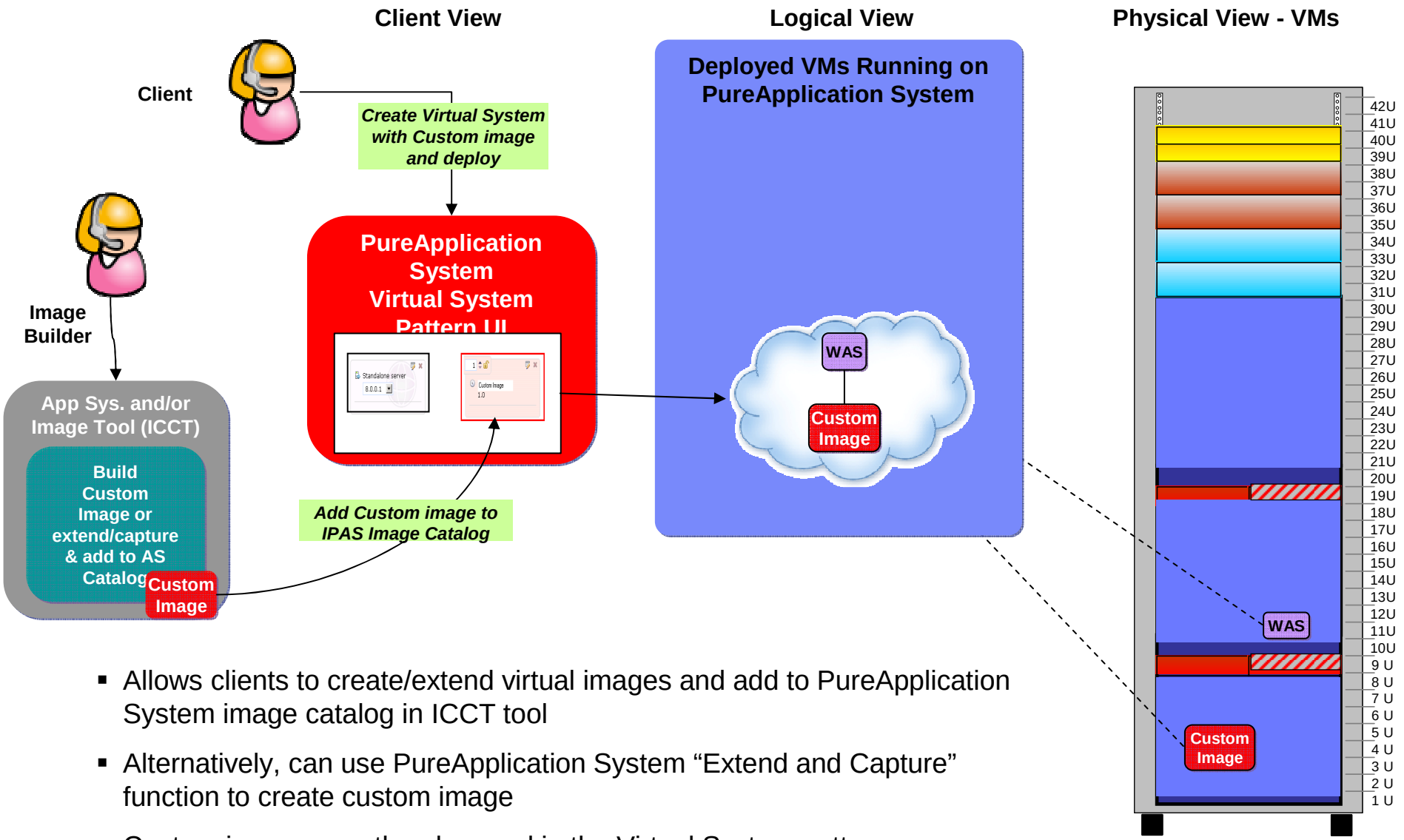
Patterns: Creating Custom Virtual Systems Patterns

PureApplication System Allows Customers To Customize Images

- Customized images are required in some situation
- IBM Provides Image Construction Composition Tool (ICCT) for Image Customization
  - ICCT tool creates a standard VM format in Open Virtual Appliance
  - ICCT allows SME's to capture existing expertise for operating system and middleware installation, and then dynamically combine pre-defined components to build new image packages



Custom Image Views



- Allows clients to create/extend virtual images and add to PureApplication System image catalog in ICCT tool
- Alternatively, can use PureApplication System “Extend and Capture” function to create custom image
- Custom images can then be used in the Virtual System pattern

Section

IBM PureApplication System – Business Value

- Reduce datacenter energy and maintenance costs
- Meet performance requirements out-of-the-box. Elastically adjust and grow with ease to respond to rapidly changing business needs.
- Reduce risk and speed deployment of new applications onto an optimized, cloud infrastructure
- Efficiently deliver IT services with unmatched performance and manageability, all integrated in a system ready to support a private cloud environments

Section

IBM PureApplication System – Summary

Summary

- PureApplication System makes client's move to Private Cloud simple and seamless
  - Roll-in in a single rack that has all the H/W and S/W components needed to build private cloud
- Supports different deployment models to cater to variety of client needs
- While optimized for IBM middleware, PureApplication System has capabilities to expand beyond the available S/W by allowing clients to bring in their own Virtual image and add that to the shared cloud resources within PureApplication System

Q & A