

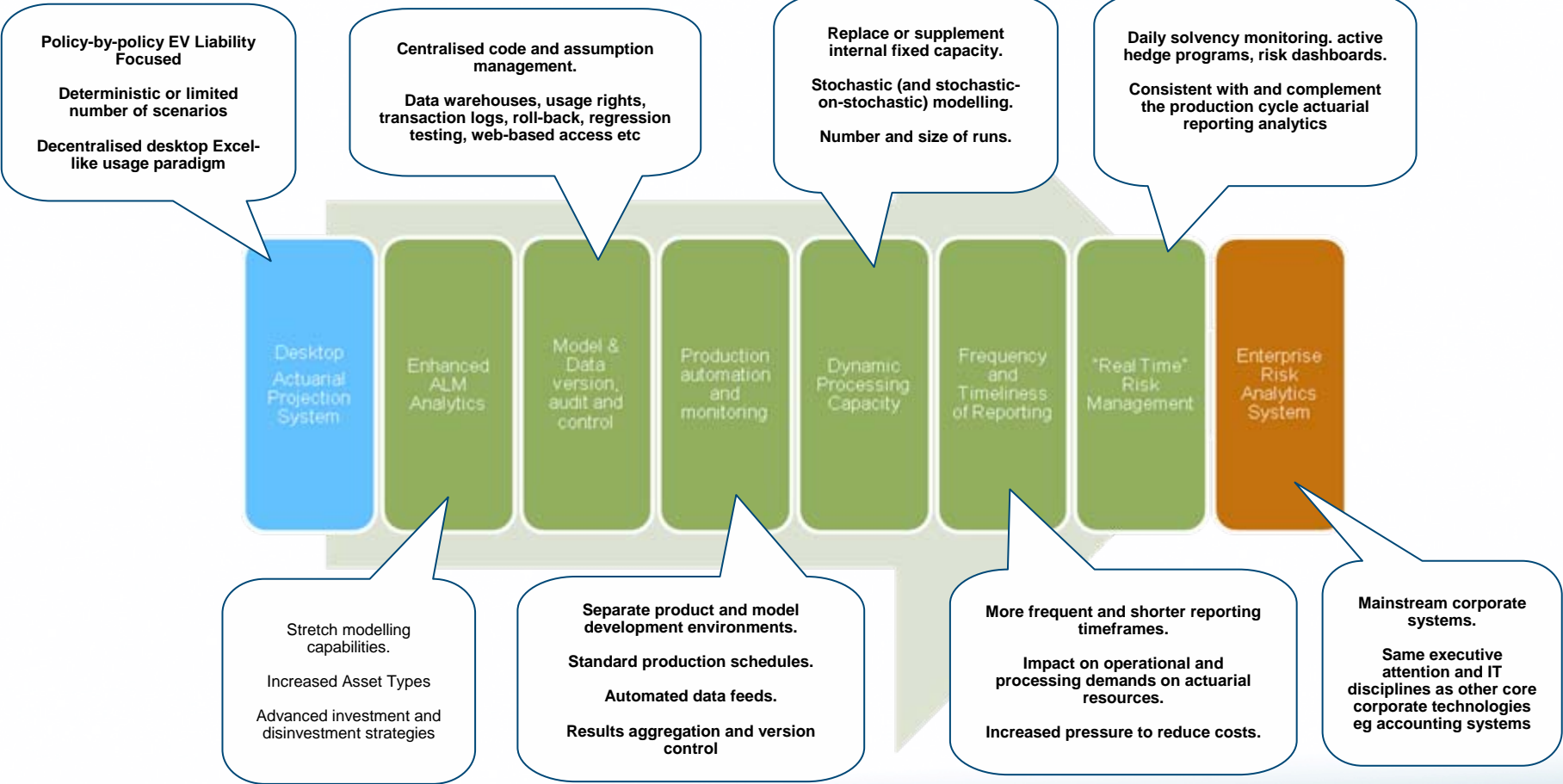
# Solvency II Strategic Implications on Financial Modelling

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November 2010



# Solvency II is Driving Shift From Desktop to Enterprise Risk Analytics



# Resulting in an Expanded Actuarial IT Landscape

## Resources

Actuarial & Risk Management

Analytics Configuration

Process Implementation

System Integration

## Analytics

ESG

Excel & Other MS Office based tools

Actuarial Projection System

Daily Solvency Monitoring

Risk Aggregation

## Software Platform

Data Management

Version Control

Audit

Scheduling and Automation

Risk Dashboard

## Infrastructure

Database Warehouse

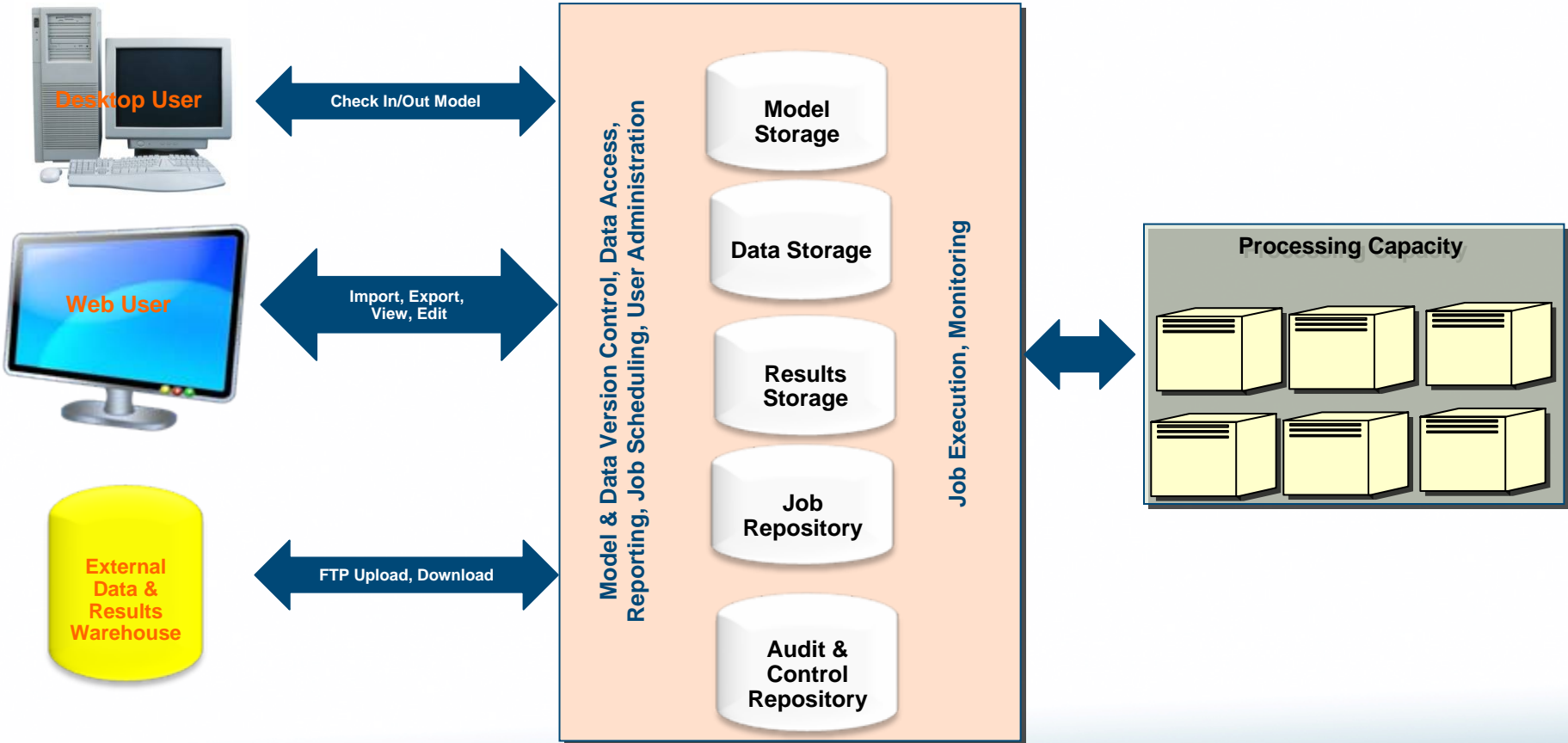
Processing Capacity

BI Technology

# IT Characteristics

- Includes all Pillar I analytics including internal tools (often Excel based)
- Typically web-based interface to facilitate widespread access
- Fundamentally different and orders of magnitude more sophisticated technologies than currently adopted by actuarial departments
- Centralised internal or hosted data centre
- Requires active involvement and management by corporate IT department
- Internal and external resources

# Future Solution



# Production Processing

## Objectives

- Automated
- Controlled
- Auditable
- Reliable

## Solution

- Client-server system
- Version control with disaggregated data model
- Access control
- Scripted job streams
- Dynamic provisioning of resources

# Web User Interface Functionality

## Job Manager

- Define and maintain scripts
- Create ad-hoc requests

## Assumption Manager

- Review assumptions
- Modify assumptions
- Create assumption sets

## Run Manager

- Launch runs
- Monitor runs
- Allocate and manage resources

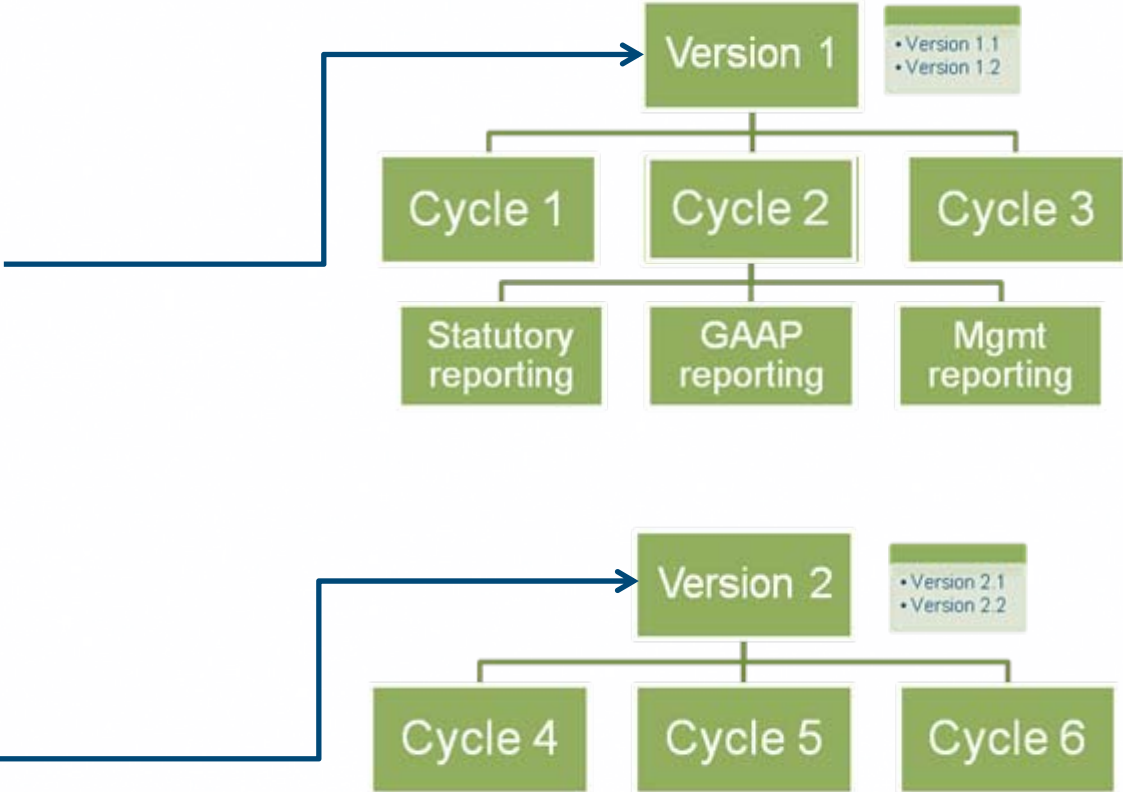
## Systems Manager

- Manage user access
- Manage hardware resources
- Set limiters
- Resource usage reporting

# Model Management Review



## Production Models

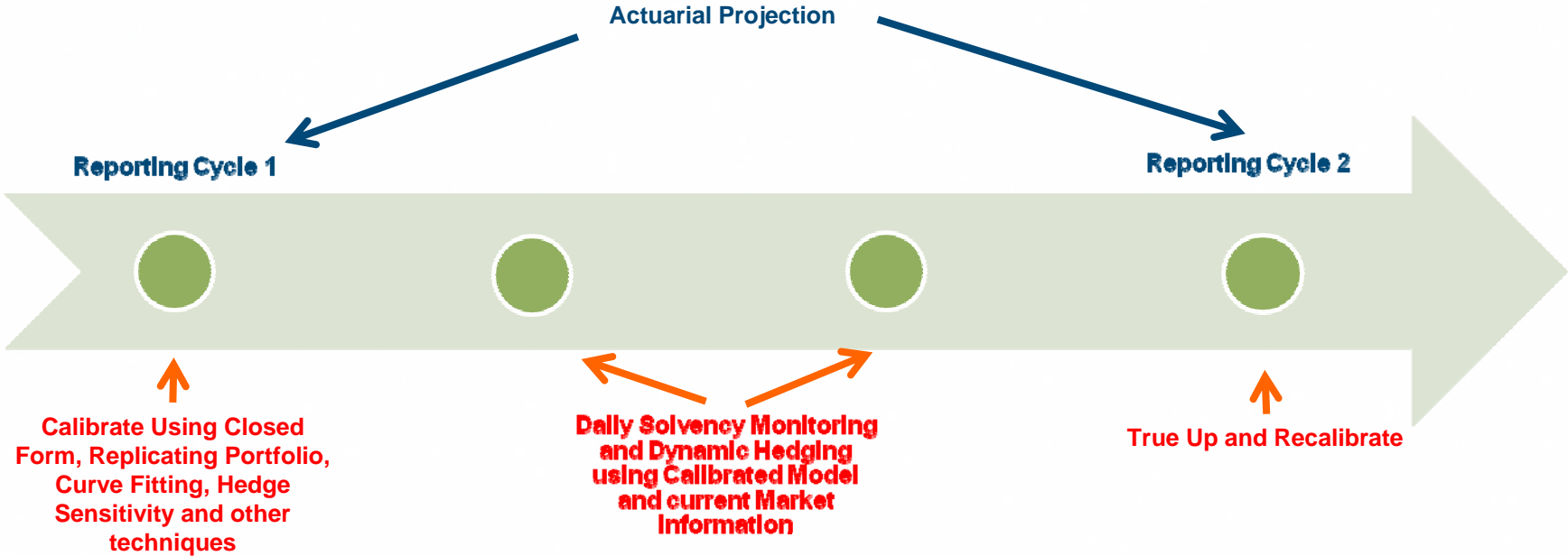




# Hosting Options

- Cloud computing resources from, for example, Microsoft Azure
- Dynamic capacity charged on CPU per hour usage basis
- Extensive scalable storage
- Multiple data centres with “live” mirroring of data
- Backup, redundancy, high bandwidth etc
- Global access
- Combine internal and cloud resources
- Outsourced model maintenance and management

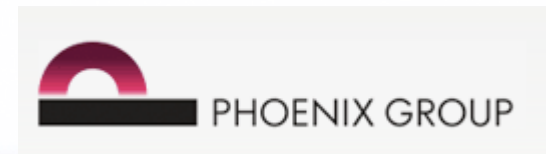
# Reporting Cycle and Daily Solvency Monitoring Integration



# Milliman is Implementing such a Solution at Phoenix UK

“Having acquired many companies with a variety of actuarial projection systems and models, we sought a provider who can work closely with us to simplify, rationalise, and streamline our processes. We must be able to gain Solvency II internal model approval, monitor and manage our risks on a daily basis and drive internal operational efficiency savings across our full business. We believe that the combination of Milliman’s consulting expertise, the MG-ALFA® actuarial projection system and the Daily Solvency Monitoring System (DSMS) offers us such a solution.”

Andy Moss  
Phoenix Life Finance Director  
September 2010



# Conclusions

- Requirements and implementation solution largely independent of:
  - Size of organisation
  - Internal or standard SII model
- Difference is:
  - Scale and capacity of organisation to implement internally or through external support
  - Whether to use existing actuarial system/models or implement new solution
  - Whether to host internally or seek to outsource infrastructure and/or model operation