



# Introduction to Dynamic Infrastructure

By Alan G. Labouseur

**MARIST** SCHOOL OF COMPUTER  
SCIENCE & MATHEMATICS





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## MODULE FOUR

# SERVICE AND ASSET MANAGEMENT

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## Introduction to Dynamic Infrastructure

Designed, compiled, written, and edited by

Alan G. Labouseur

[www.Labouseur.com](http://www.Labouseur.com) / [Alan.Labouseur@Marist.edu](mailto:Alan.Labouseur@Marist.edu)



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## REMARKS

*Once upon a time . . .*

Alan was reading the discussions and trying to keep up with you folks. You are doing really well. I enjoyed all of our discussions this week, especially “New Security Challenges” in the CIO Pain Points thread. (Nice going Ashley.)

Security vs. Availability is always a tough trade-off, and we could argue all sides of that issue all class. But let’s not. Paul, thanks for sharing that Collections Agency story. I find that sort of situation really interesting: using your IT powers for good and not evil. But again, there are trade-offs and it’s never black and white. (I’m going to suggest this as a topic in our undergraduate ITS capping course.)

I’m glad to see that I was able to “stir the pot” with the Greenwashing thing. There is no shortage of opinions on this (or any) matter around here. That’s very cool.

Keep up the good work everybody.



# REVIEW

Let's review. Last time our intrepid (and dynamic) adventurers . . .

- The four challenges for Information Architecture are Compliance, Availability, Retention and Service.
- Data is facts and figures where information is that data given context and meaning.
- Planned downtimes must occur so that upgrades, routine maintenance, etc. can occur.
- Recovery Time Objective and Recovery Point Objective need to be calculated in disaster recovery.
- Real-time data sharing:
  - ▶ Goal: have multi-way replication amount all platforms.
  - ▶ Strategy: extraction, integration, translation, encoding and loading.



What is this?



# SERVICE MANAGEMENT

**DYNAMIC INFRASTRUCTURE**

THE SECOND PILLAR OF  
DYNAMIC INFRASTRUCTURE IS  
SERVICE MANAGEMENT



# SERVICE MANAGEMENT ?

What is “Service”?

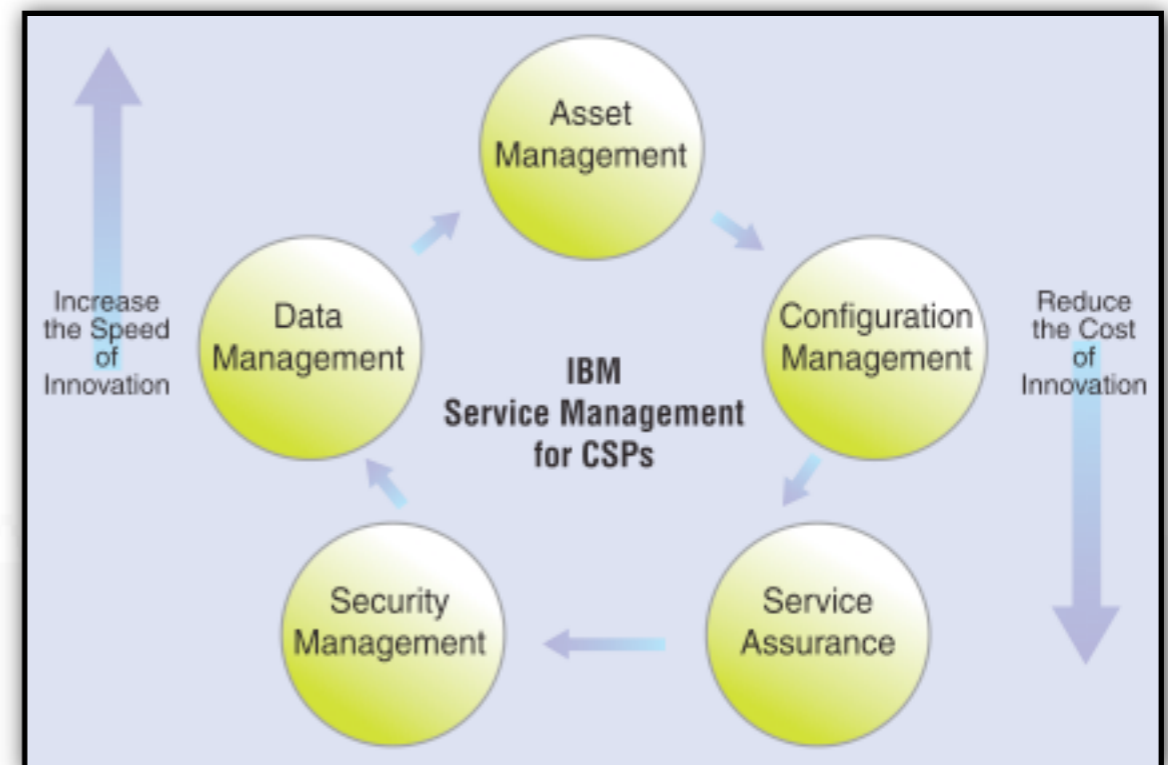
A service is **a collection of IT components** (hardware, software, facilities, people, processes, and procedures) that meet standard, well-known business needs of IT customers.

A service is **what the customer experiences**.

As opposed to?

A solution, which is the set of resources you use to work together to provide a service to your customers.

Service Management is the art and science of managing what your customers experience.







# SERVICE MANAGEMENT ?

Let's ponder:

- If you don't have a document that contains all operational activities;
- If you cannot quickly reverse a change;
- If you don't monitor your resources well;
- If you have a lot of "silo-ed" processes and data;
- If you don't have a change process that goes across silos;

You might be . . . (But wait, there's more!)

- If you have a single person in charge of configuration management across the enterprise;
- If you buy resources to fit *specific* applications or workloads;
- If you take a long time to incorporate new hardware or software into your environment;

You might be . . . unable to manage what your customers experience. Let's see if we can fix that.



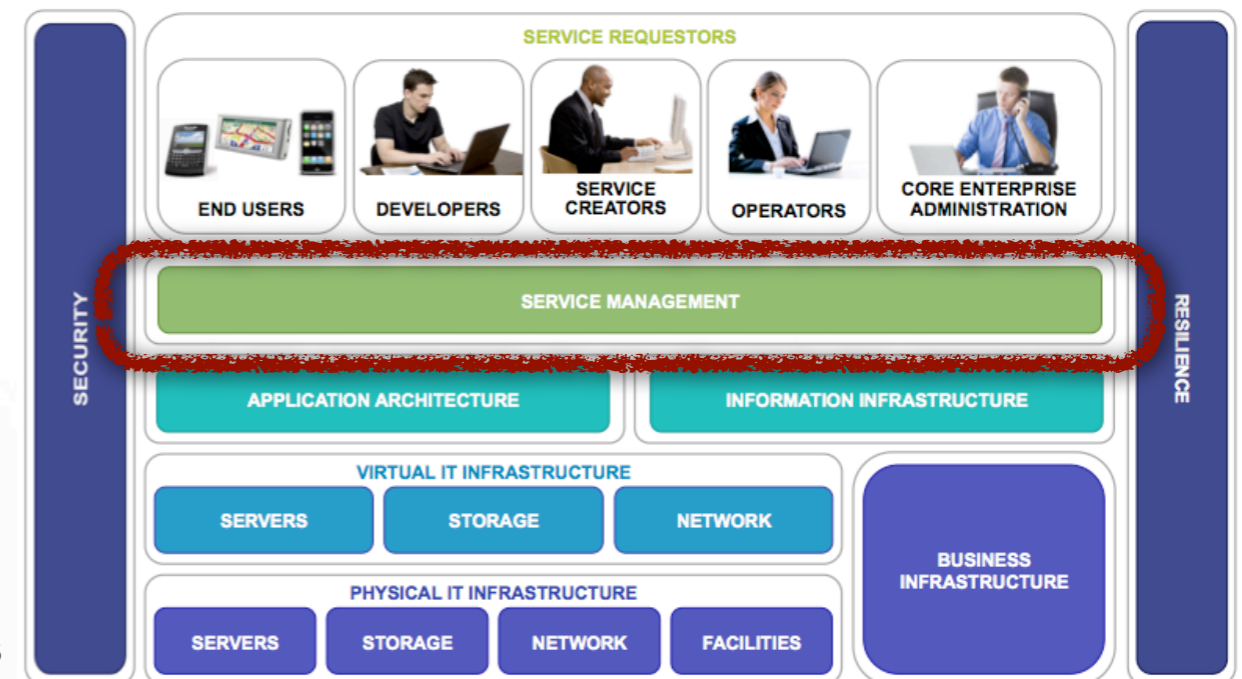


# SERVICE MANAGEMENT

Supporting users requires a well-managed **Service Management** layer.

This combination of technology and processes ensure that the changes in the infrastructure are consistent and meet the needs of each user community.

- Provides **visibility**, **control** and **automation** across all the business and IT assets to . . .
  - ▶ effectively and efficiently deliver higher value services.
  - ▶ help organizations standardize and manage across all business and IT assets (avoiding silos, which inhibit information flow) to deliver higher value services.
  - ▶ achieve quantifiable process performance
  - ▶ extract greater value of existing investments.
  - ▶ increase IT organizational productivity.
- Successful Service Management integrates the management of your IT services instead of approaching it as “silos” groups of servers, software, databases, and networks. This integrated approach (ideally) empowers you to proactively deliver IT services that proactively enable the business, as opposed to being reactive.





# SERVICE MANAGEMENT

Service Management is primarily about three things:

1. Visibility



2. Control



3. Automation



(Well, would you believe *four* things? We need to look at standards too.)



# SERVICE MANAGEMENT > VISIBILITY

Visibility is all about *seeing* your business services.

- to see in real-time how your environment impacts the business.
- to gain insight into all aspects of your business.



One way to do this is by implementing role-based dashboards showing business and operational views across the enterprise for real-time operations and process management.

- These dashboards gather and consolidate intelligence to optimize individual and group productivity.
- These dashboards eliminate errors by sharing data across multiple teams.

The goal is to leverage Service Management strategy and planning services.



## SERVICE MANAGEMENT > CONTROL

Control is all about *governing* your business.

- It's about protecting your brand.
  - ▶ Do things "right".
  - ▶ Stay out of the news.
  - ▶ Stay out of jail (always a good goal)
- It's about making sure you have the controls in place to manage all aspects of your business across the service lifecycle (from creation, delivering into production, and operations).
- It's about ensuring you have the metrics you need to report back to upper management and outside agencies.



One way to do this is by integration.

- Integrate real-time event, resource, security, asset, and configuration data.
- Integrate cross-domain process workflows with operational tools that manage service priority and context and enforce controls.

The goal is to leverage Service Management design as an integration roadmap.



## SERVICE MANAGEMENT > AUTOMATION

Automation is all about *optimizing* your business.

- Its about increasing the efficiency
- It's about increasing efficacy
- It's about controlling expenses and freeing up more funds to help the business innovate.

One way to do this is by implementing process automation engines across real-time operational tools, process workflows, and all IT (and non-IT) assets in order to

- improve service quality
- reduce costs
- increase efficiency

The goal is to leverage service delivery and support automation across the service lifecycle.





# SERVICE MANAGEMENT > STANDARDS

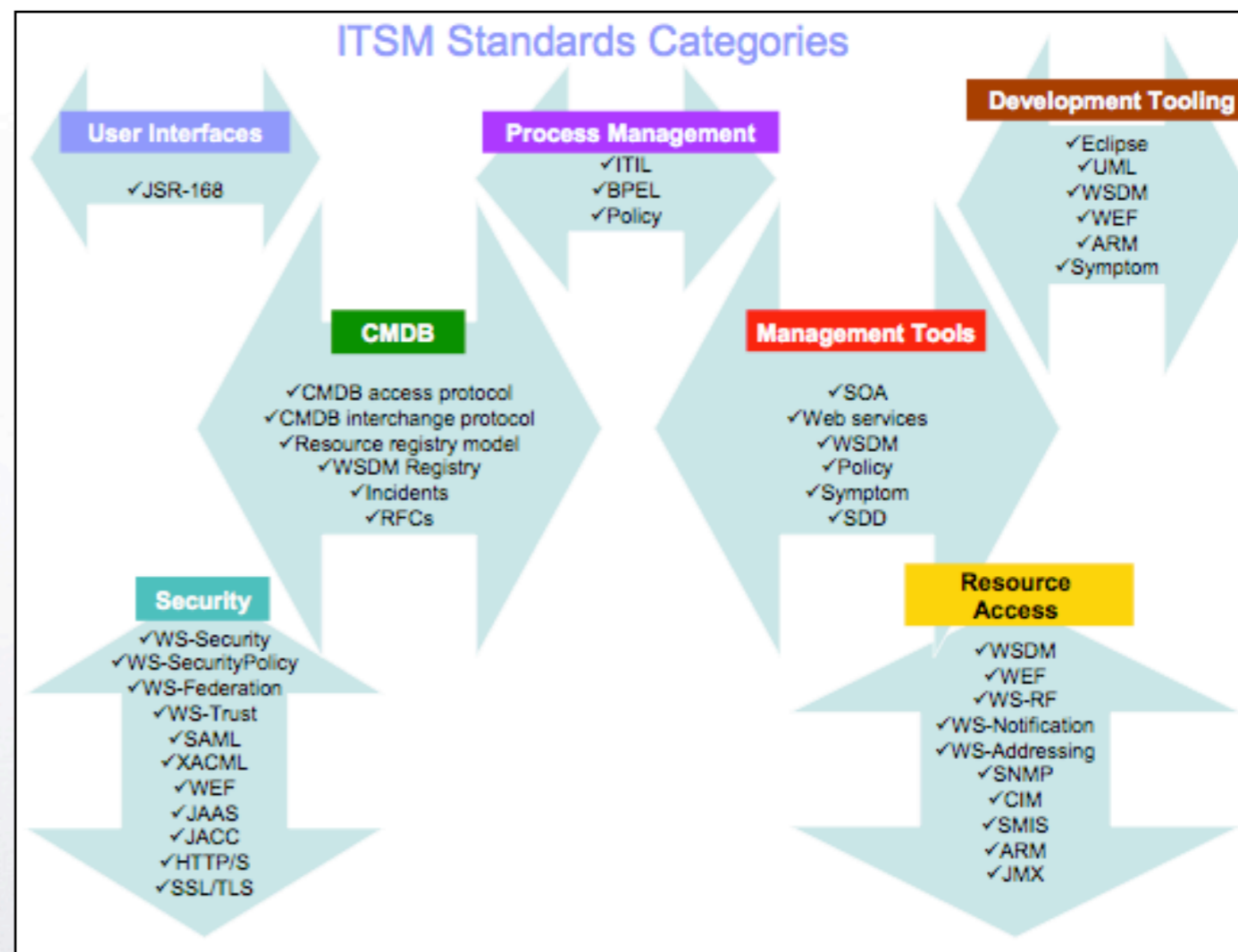
IT service management standards are very important for ubiquitous efficacy.

There are several types of standards . . .



- De Jure standards
  - ▶ e.g., W3C, ISO, IETF, IEEE, etc.
- De Facto standards
  - ▶ e.g., USB, Plug and Play, etc.
- Other standards
  - ▶ Best Practices
  - ▶ Open Source
  - ▶ Certification

. . . in many categories:





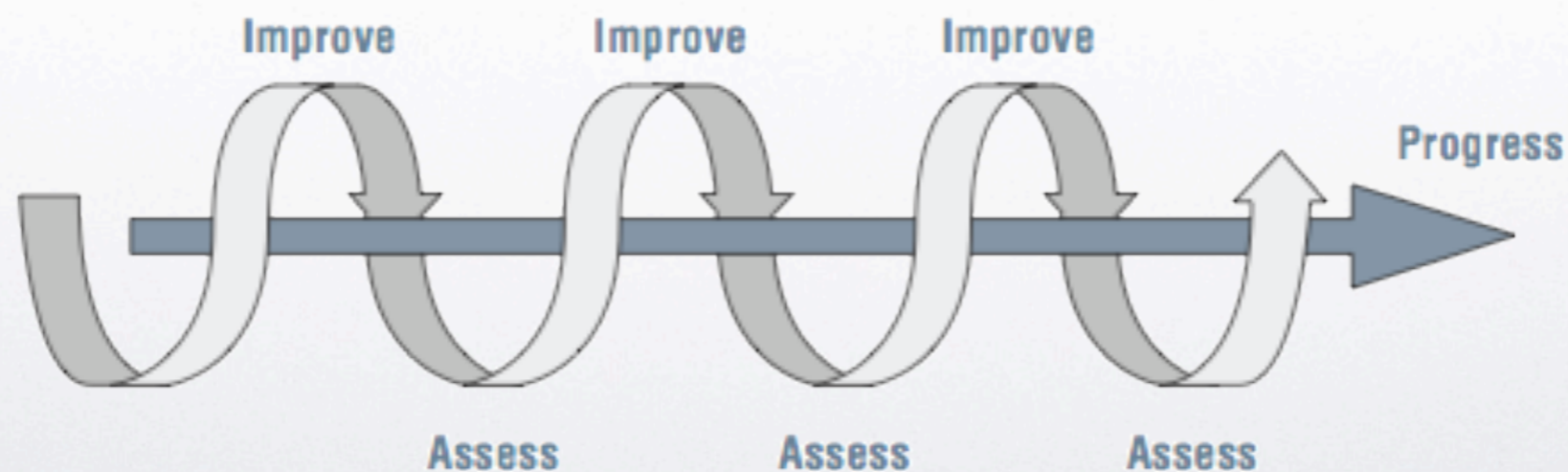
## SERVICE MANAGEMENT LIFECYCLE

All of these Service Management goals and strategies are components of a never-ending journey. This **is a process**, not an end in itself.



It's said that life is a journey (or, according to Tom Cochrane, a highway) not a destination. Service Management (and Dynamic Infrastructure for that matter) is no different.

The journey is a Möbius strip of progressive assessment and improvement.







# ASSET MANAGEMENT

DYNAMIC INFRASTRUCTURE

THE THIRD PILLAR OF  
DYNAMIC INFRASTRUCTURE IS  
ASSET MANAGEMENT

The diagram features three classical columns on the left, each supporting a portion of the text 'DYNAMIC INFRASTRUCTURE'. The text is rendered in a large, bold, orange-to-red gradient font with a thick black outline. To the right of the columns is a green rectangular box with a white border containing the text 'THE THIRD PILLAR OF DYNAMIC INFRASTRUCTURE IS ASSET MANAGEMENT' in a black, hand-drawn font.



## ASSET MANAGEMENT

... is the organized and systematic tracking of an organization's physical and virtual assets.

Did you ever wonder, How do I . . .

implement best practices across my business?

insure the right inventory and spare parts are on-hand?

improve productivity?

reduce my systems?

ensure compliance with local, state, and federal regulators?

centralized my asset data?

I did. These are all good questions. Let's take a look:





# ASSET MANAGEMENT

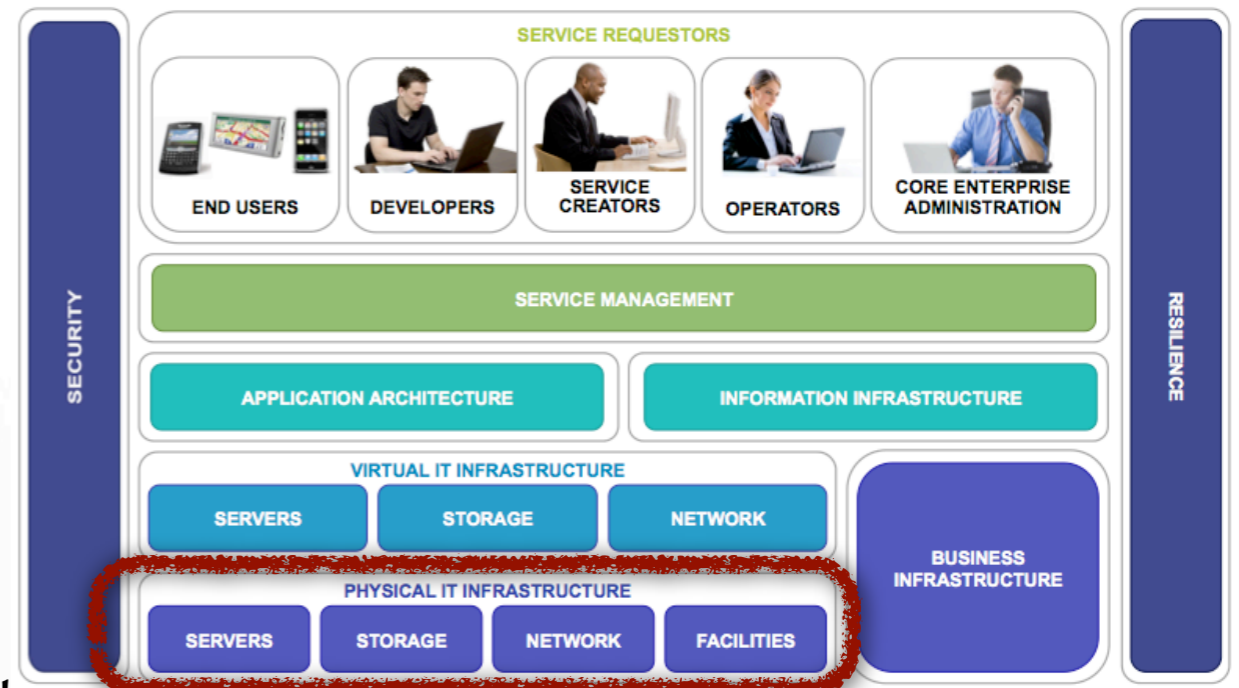
**Asset Management** involves optimizing four major drivers:

- high reliability
- low cost
- compliance within a framework
- all with only limited resources

Maximizing the value of critical business and IT assets over their lifecycle requires a careful balancing act.

The reward for the successful asset manager is high “return on assets”. So you’ll have that going for you, which will be nice. But achieving this requires implementing best practices, getting your inventory “right”, being productive, reducing systems, and complying with regulations.

How can you manage all the data necessary for this? In a central (but secure and robust) repository.





# ASSET MANAGEMENT IN FOUR STEPS

## 1. IT Asset Management

- Track and manage the lifecycle of IT assets.
  - ▶ Develop IT Asset Management to improve inventory, maintenance, contacting processes.
  - ▶ Develop License Compliance Management to track hardware and software deployment.

## 2. Consolidated Lifecycle Management

- Manage the lifecycle of all critical assets
  - ▶ Implement consolidated enterprise asset management.
  - ▶ Increase the reliability and availability of assets, and the services the assets collectively support.

## 3. Converged Assets

- Leverage operational assets with embedded IT
  - ▶ Automate workflows to enhance operational efficiencies.
  - ▶ Leverage solutions built on standards-based technologies to improve agility and flexibility.



## 4. Deep Industry Functionality

- Address the needs of your asset-intensive industry
  - ▶ Start an asset management assessment. (Yes, seriously.)
  - ▶ Increase productivity of the workforce while capturing knowledge.



## ASSET MANAGEMENT IN THREE PARTS

One could (if one chose to) look at Asset Management as a combination of Remote Control, Inventory, and Software Distribution services for managing the IT elements in one's enterprise. In that respect, IT Asset Management, Consolidated Lifecycle Management, Converged Assets, and Deep Industry Functionality can be addressed in those three parts:

1. Remote Control
2. Inventory
3. Software Distribution



# ASSET MANAGEMENT > REMOTE CONTROL

## Common Remote Control functions:

- Take over computers
  - ▶ Take over screen, mouse and keyboard in real time
  - ▶ Connect to many computers at once for “multicast” support (or training for that matter)
- Perform complex remote management
  - ▶ Manage services, command prompt parameters, the registry event viewer, disk information, etc.
  - ▶ Remote control before the operating system has been loaded.
    - Force reboot. Change BIOS. Install a new OS. Perform all of these tasks from your remote computer.
- Communicate to the user
  - ▶ Send messages, chat using text, audio, or video to communicate with end users to solve incidents faster.
- Collect software and hardware information
  - ▶ Remotely scan computers for a list of software and hardware information, making troubleshooting easier and compliance easier





# ASSET MANAGEMENT > INVENTORY

## Common Inventory functions:

- Identification
- Profile creation and distribution to targets
- Type of Scan
- Scan scheduling
- Record information
- Verify collection
- Tool integration

## Common Inventory fields:

- Component Type
- Ownership
- License (software and hardware)
- Location
- History
- Transfer
- Delegation





## ASSET MANAGEMENT > SOFTWARE DISTRIBUTION

The service responsible for distributing software to the IT environment.

Software Distribution types include:

- Data
- Patches and fix packs
- Entire applications
- OS updates
- Configuration changes
- Collection of Code to be distributed
- Preparation of code to be distributed
- Distribution and installation of code
- Confirmation of installation/update of code
- Configuration Management
- Event Management
- Licensing Management
- Problem Management







1072

1985 BETA 6613 6

DELTA 4912 8

972 BETA 23166 18

15 6 7.584 15

1710 GAMMA 1211 26

14 89 GAMMA 63815 2

0 91

15 74 BETA 551510 28

344

2934

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488	850.12	442881097566593	■	5499	850.12	846	757	639
639	248912	564856692346	■	4747	248912	757	105	846
846	983367	724587006606315	■	5968	983367	105	598	757
757	011886	40656643086021	■	2001	011886	598	059	105
105	000568	053921717629317	■	1316	000568	059	093	598
598	146844	152635608277857	■	314	146844	093	852	059

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# REQUIRED READINGS

## Websites

- IBM Integrated Service Management portal: <http://www.ibm.com/ibm/servicemanagement/us/en/index.html>
- IBM's Enterprise Asset Management portal: <http://www-01.ibm.com/software/tivoli/solutions/asset-management/eamresourcecenter>

## Papers (already linked from the prior slides)

- Key Challenges for Service Management [[pdf](#)]
- Service Management in an Uncertain Economy [[pdf](#)]
- IT Service Management Standards [[pdf](#)]
- Service Management Lifecycle (and journey) [[pdf](#)]
- BP Angola Asset Management Case Study [[pdf](#)]
- New Standards for Asset Management in Industry [[pdf](#)]
- Asset Management in an Uncertain Economy [[pdf](#)]

**DON'T PANIC**  
**They're short**





# OPTIONAL READINGS AND VIEWINGS

## Videos

- [Service Management](#)
- [Service Management vs. Systems Management](#)
- [Service Visibility for Smart Decision-Making](#)
- [Start Right Now with Service Management](#)

## Web Sites

- Maximo asset management- <http://www.ibm.com/software/tivoli/products/maximo-asset-mgmt/>
- Business Service Management- <http://www-01.ibm.com/software/tivoli/solutions/bsm/>

## Papers

- Fault Monitoring for Real-time Service Management [[pdf](#)]
- Service Oriented Computing- <http://infolab.uvt.nl/pub/papazogloump-2003-52.pdf>
- Developing long-term competitiveness through information technology assets- <http://dspace.mit.edu/bitstream/handle/1721.1/2606/SWP-3878-40987878-CISR-290.pdf?sequence=1>
- Information Technology Asset Management - <http://www.google.com/patents?hl=en&lr=&vid=USPATAPP9303436&id=jbuGAAAAEBAJ&oi=fnd&dq=IT+asset+management&printsec=abstract>



# SELF-TEST

## Service Management

- What are the three critical aspects of Service Management?
- What does “De Jure” mean?
- What does “De Facto” mean?
- What the heck is “ubiquitous efficacy” and who writes like that?
- Why is Service Management considered to be a journey?

## Asset Management

- What is Asset Management and what is it trying to optimize?
- What are the four steps in Asset Management?
- How can Asset Management be addressed?



# SELF-TEST ANSWERS

## Service Management

- What are the three critical aspects of Service Management? - **Visibility, Control, and Automation**
- What does “De Jure” mean? - **by right**
- What does “De Facto” mean? - **by fact**
- What the heck is “ubiquitous efficacy” and who writes like that? - **getting it done everywhere in the enterprise / Alan**
- Why is Service Management considered to be a journey? - **because of it is continuous progression assessment and improvement.**

## Asset Management

- What is Asset Management and what is it trying to optimize? - **The organized and systematic tracking of an organization’s physical and virtual assets. It is trying to optimize high reliability, low cost, compliance within a framework, with only limited resources.**
- What are the four steps in Asset Management? - **IT Asset Management, consolidated lifecycle management, converged assets, and deep industry functionality.**
- How can Asset Management be addressed? - **Remote control, inventory, and software distribution.**



# DISCUSSIONS

## Service Management

- Take a look at the IBM ITSM Self-Assessment Tool at <http://www.ibm.com/ibm/servicemanagement/us/en/self-assessment-tool.html> and make some suggestions on how you might put it to use.
- Play the Service Management Simulator game at [www.servicemanagementcenter.com/main/pages/IBMRBMS/SMRC/ShowCollateral.aspx?oid=35938](http://www.servicemanagementcenter.com/main/pages/IBMRBMS/SMRC/ShowCollateral.aspx?oid=35938) and discuss.

## Asset Management

- Watch the IBM Tivoli Asset Management demonstration video at [www.servicemanagementcenter.com/main/pages/IBMRBMS/OMSA/ShowCollateral.aspx?oid=68562](http://www.servicemanagementcenter.com/main/pages/IBMRBMS/OMSA/ShowCollateral.aspx?oid=68562) and discuss.
  - ▶ Sometimes I can see this site fine. Other times it asks me to register. If you are asked to register then feel free to skip this. We absolutely do not have to be complicit in IBM forcing us into submitting to spam in order to see their own marketing material. Or . . . <evil grin> . . . you could always register with intentionally goofy data. (Name: Derek Smalls, Occupation: Bassist, Email: dsmalls@SpinalTap.co.uk)
- Research three common Remote Control tools (not including Colin Quinn) and discuss ways in which you might use them.

Remember our discussion expectations and guidelines.



## ACKNOWLEDGEMENTS

Some of the source material and a few of the graphics in this module came from the IBM World Wide Client Technology Centers's very own Frank De Gilio.

Some additional source material was provided by David Graves and Paul Kontogiorgis of IBM in 2006.

- By using these materials you agree to the IBM Terms of Use, found at <http://www.ibm.com/legal/us/> .
- The IBM copyright and trademark information webpage is incorporated herein by reference: <http://www.ibm.com/legal/copytrade.shtml>.

More additional material from:

- IBM Integrated Service Management portal ([www.ibm.com/ibm/servicemanagement/us/en/index.html](http://www.ibm.com/ibm/servicemanagement/us/en/index.html))
- IBM's Enterprise Asset Management portal (<http://www-01.ibm.com/software/tivoli/solutions/asset-management/eamresourcecenter>)
- Netop's Remote Control portal at [www.netop.com/products/administration/netop-remote-control.htm](http://www.netop.com/products/administration/netop-remote-control.htm)

Alan thanks his diligent (and patient) student Carley Keefe for her contributions to this work.

Marvin the Paranoid Android<sup>®</sup> and all associated marks and characters are registered trademarks of Touchstone Pictures.



## COLOPHON

This work was authored in Keynote by Alan G. Labouseur in June 2010 from his home in Pleasant Valley, NY.

That's his tee shot on #4 at Winding Hills in Montgomery, NY. So close!

Distractions that made writing go slower:

- The [This Week in iPad](#) podcast
- "Hitch-22" by Christopher Hitchens
- The [Doug Drexler Blog](#)

Music that made writing go faster:

- iTunes Genius Mixes: Hard Rock
- Specific artists: James Brown / Journey / The Rippingtons / The Statues of Liberty / Cheap Trick

