

Expediting the Validation Cycle with Virtual Machine Technology

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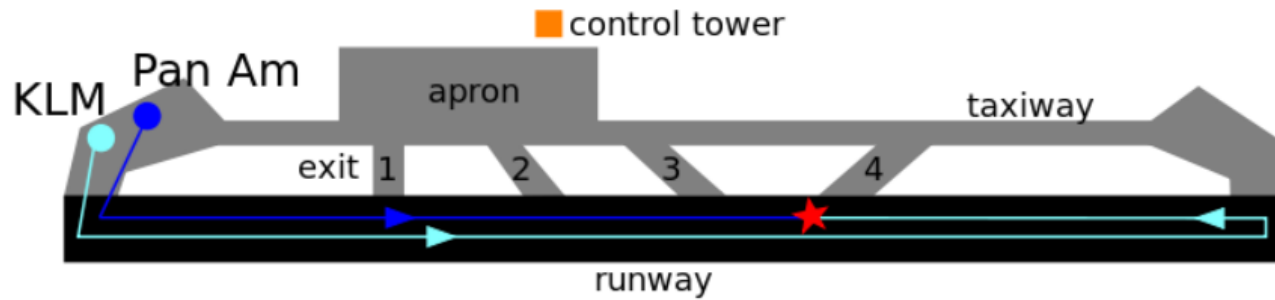
What is Computerized System Validation?

- Documented
- Reliable and repeatable
- Results match requirements and design



- But why do we do this?

What's at Stake?



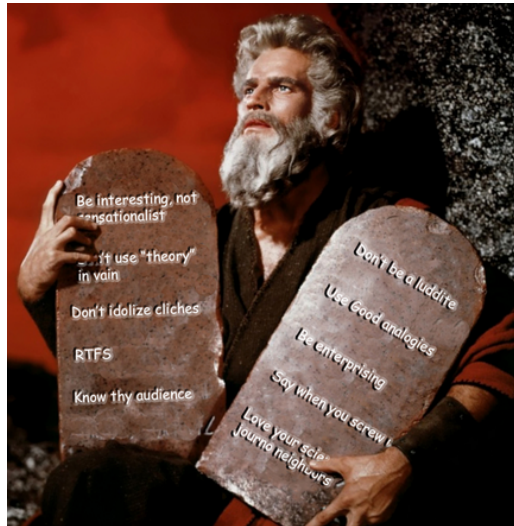
Problem 1

Old process



New technology

Problem 2



Human action
guarantees
human error



Problem 3



All risks are
identical

Problem 4

No time machine

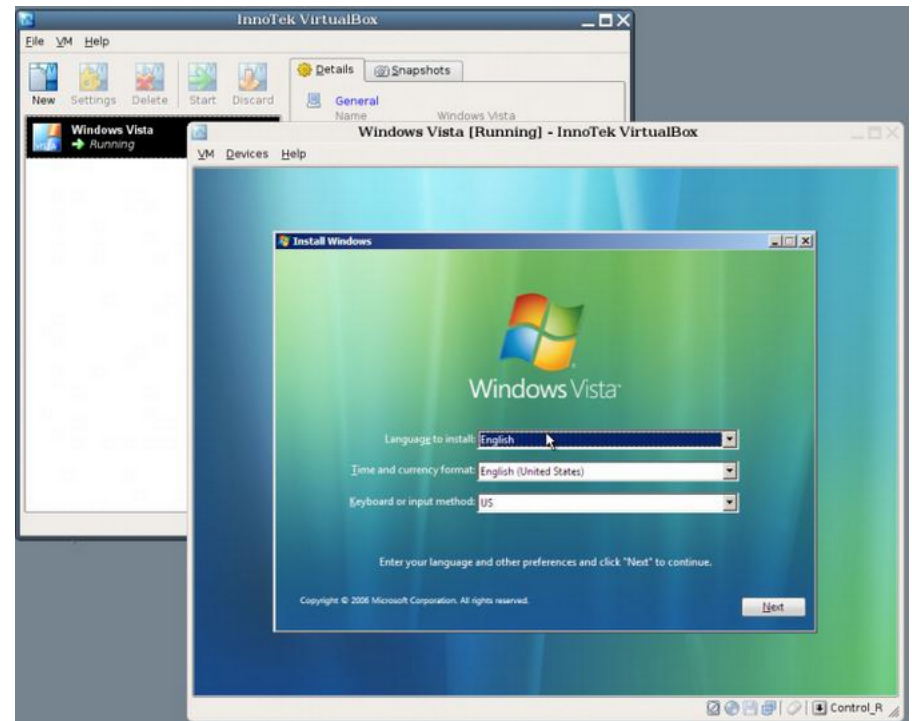


Virtual Computing

- Hardware gets a thin operating system that can run virtual computers
- Typical hardware is represented by software components
- System admins and users interact with software devices that are decoupled from physical hardware

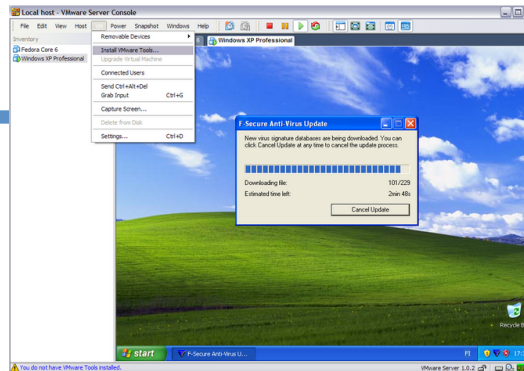
Efficiency 1

■ Stop validating hardware



Efficiency 2

- Build before hardware arrives
- Transfer virtual machine when hardware arrives



Flexibility 1

- Clone a virtual machine and try different techniques
- Clone a virtual machine and divide the work up



Nope



Oops



Success

Reliability 1

- Clones are identical
- No human error when setting up a new environment



Bah



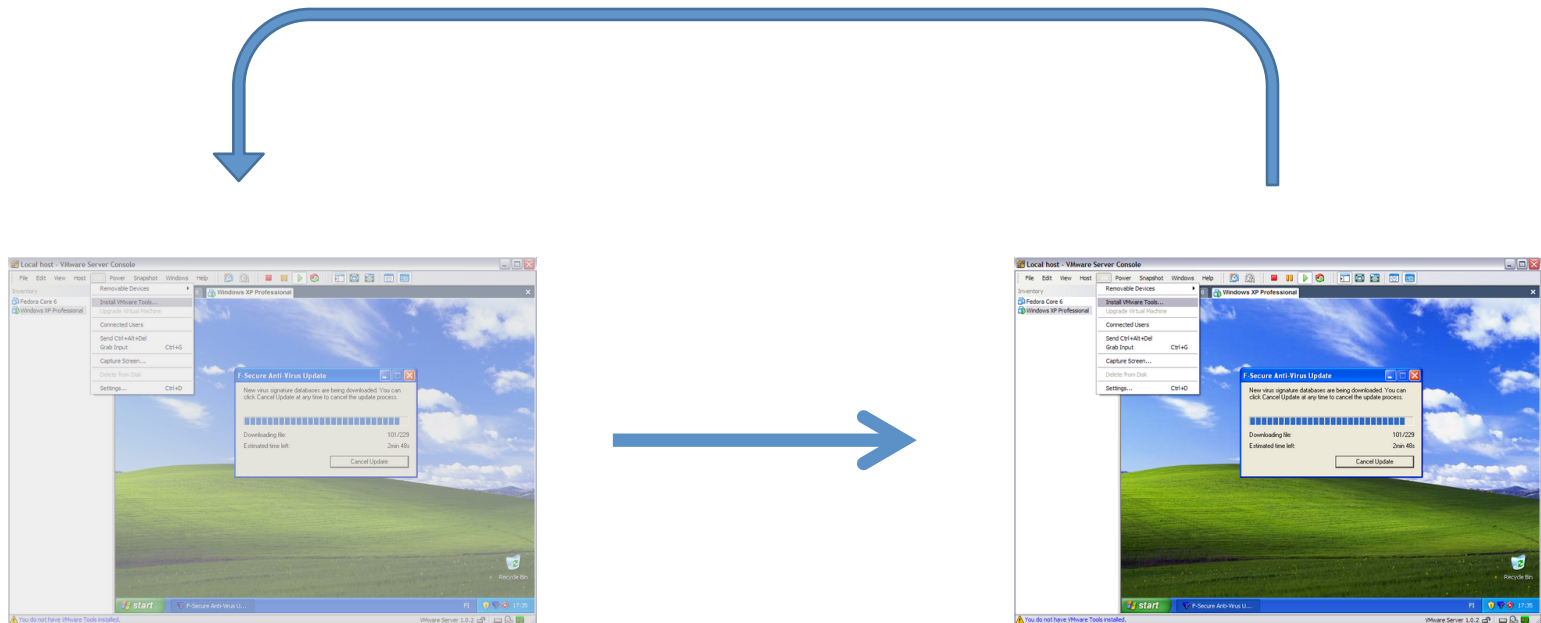
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Bah

Reliability 2

- VM Snapshot is a time machine!



Reliability 3

- No VAL environment? Just clone PRD!



PRD



VAL

Efficiency 3

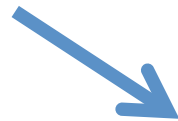
- Need to scale PRD? Just clone PRD!
- The IQ and OQ are baked right in!



PRD 1



PRD 2



PRD 3

Conclusion

- Be smart
- Remove the human
- Leverage the clone and the snapshot

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