

ENGINEERING PHARMACEUTICAL INNOVATION



Virtualization Throughout the Software Lifecycle



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Overview

- Challenges of technology in the pharmaceutical industry
- How virtualization can be used to overcome challenges



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Challenges for System Providers

- Maintaining access to multiple software revisions
- Supporting legacy systems as technology advances
- Providing customers with computer replacements in the event of a failure

Challenges for System Users

- Risk of running legacy systems
 - Maintaining disaster recovery procedures
 - Excessive downtime if legacy software or hardware cannot be replaced after a failure
- The cost of maintaining a stock of obsolete components
- Time required to qualify a system upgrade



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Features of Virtualization

- Multiple virtual computers can run on a single host computer
- Replicates hardware and software
- Provides a layer of abstraction between the physical computer hardware and software



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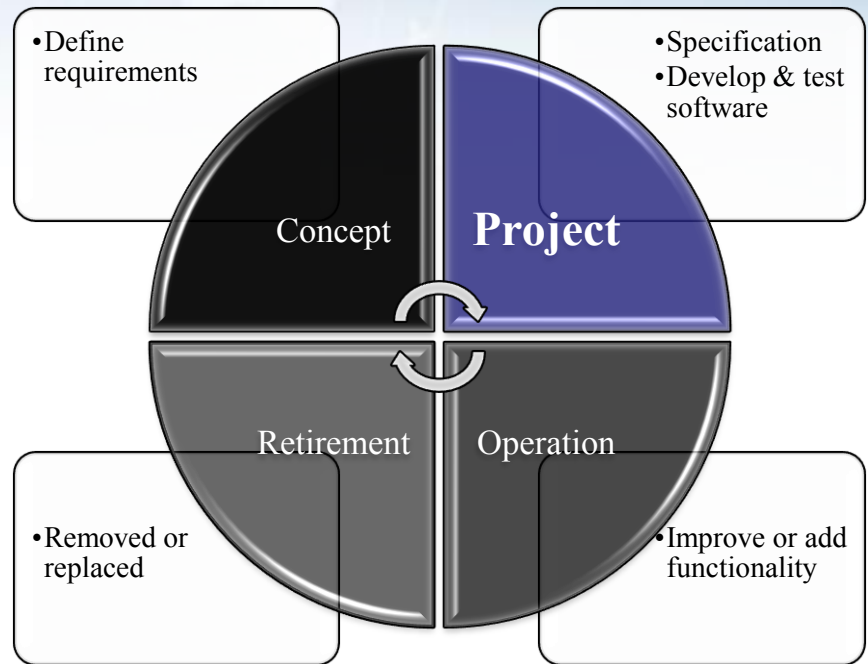
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Virtualization in Project Phase

- How to access multiple software revisions
 - Developers can install multiple versions of the same software on different VMs

Software Lifecycle



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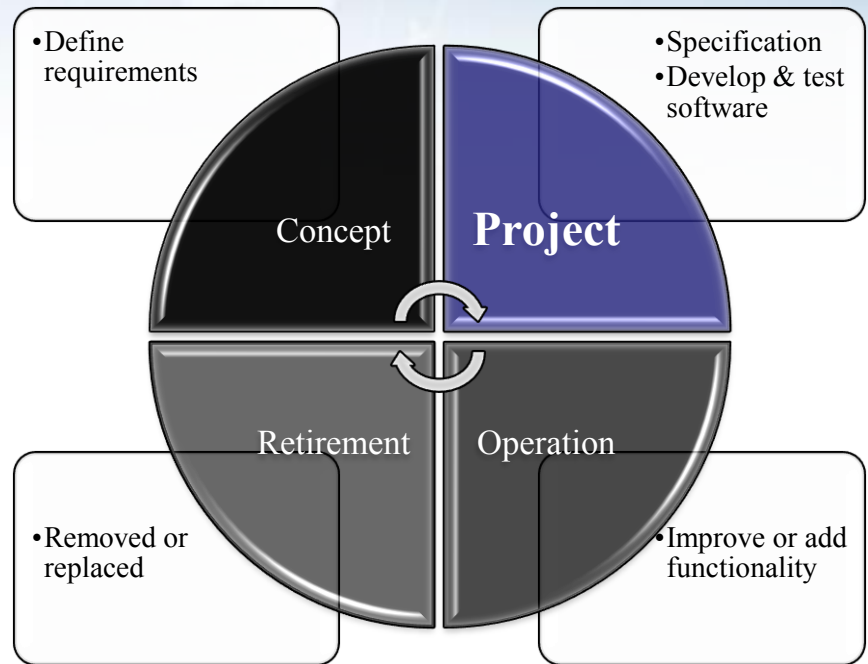
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Virtualization in Project Phase

- Setup time for customer computers is reduced
- Computer setup quality is increased

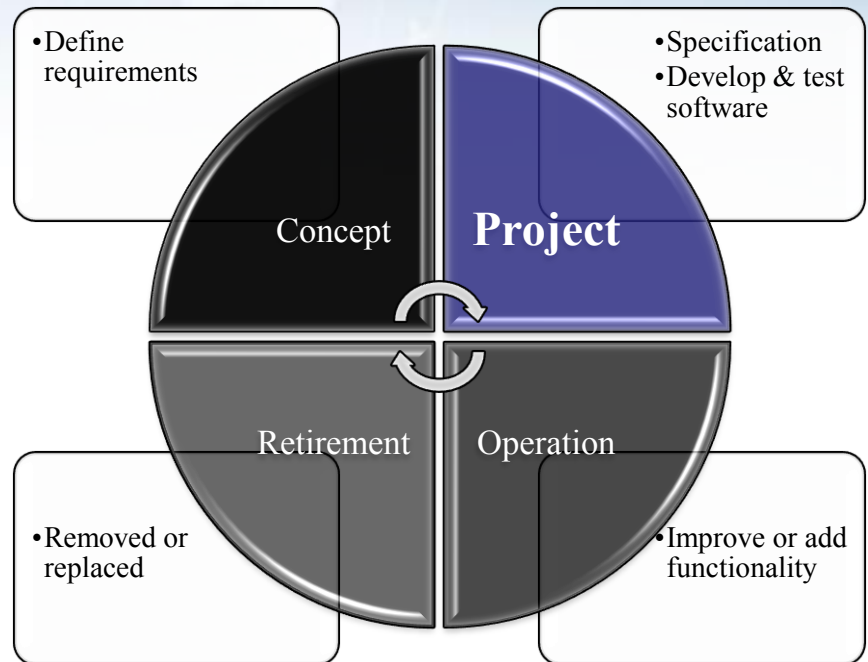
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Project Phase at Benefit

- Reduced customer computer setup time from 8 hours to 1 hour

Software Lifecycle



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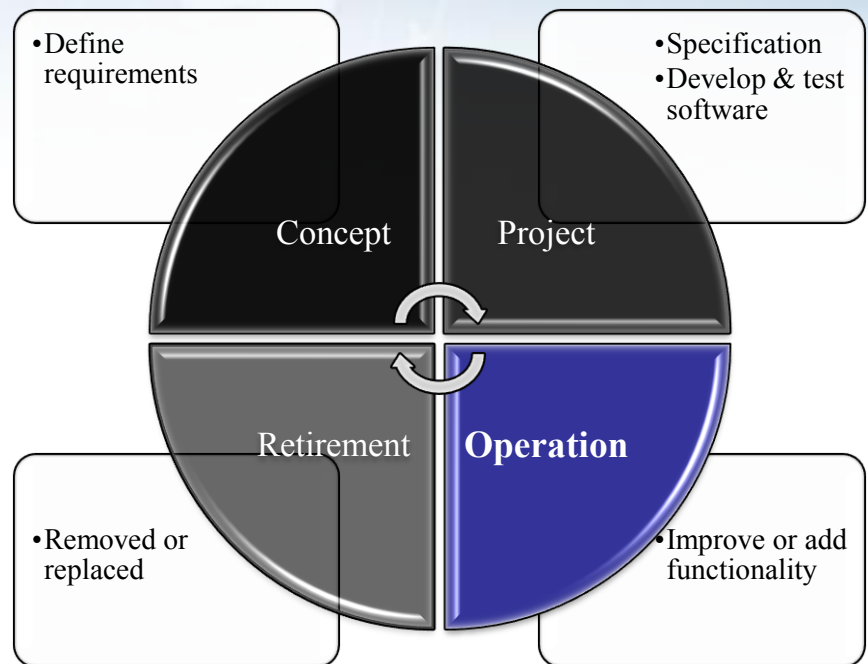
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Virtualization in Operation Phase

- Ability to access multiple systems on one physical computer

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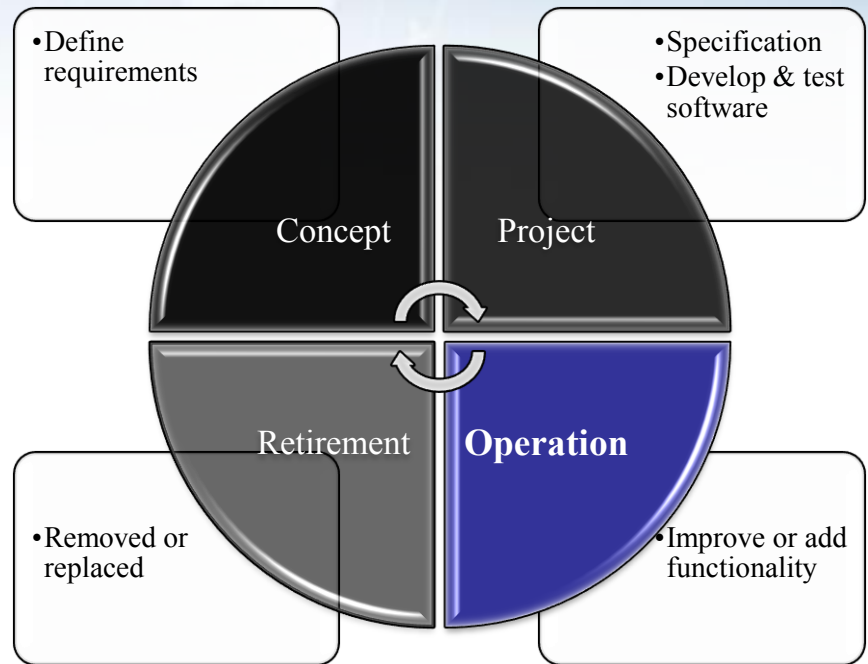
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Operation Phase Benefit

- Ability to support multiple operating systems and software revisions
- Eliminated a room of obsolete computers

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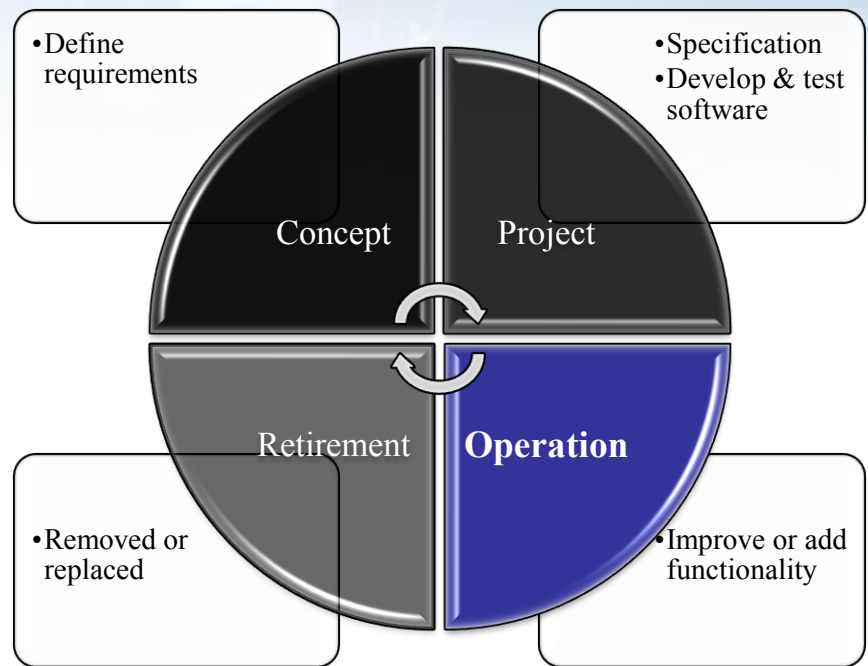
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Virtualization in Operation Phase

- Virtual machines of legacy systems can run on modern host computers and operating systems
- The amount of time a system is in the operation stage can be increased

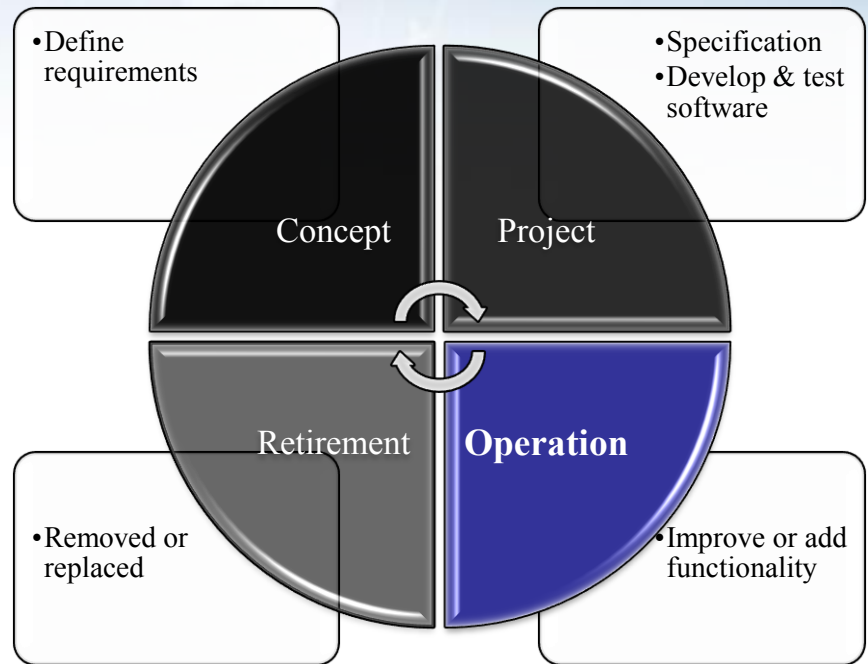
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Virtualization in Operation Phase

- Disaster recovery procedures are simplified
- Eliminates stock computers
- The consequences of a disaster have less impact

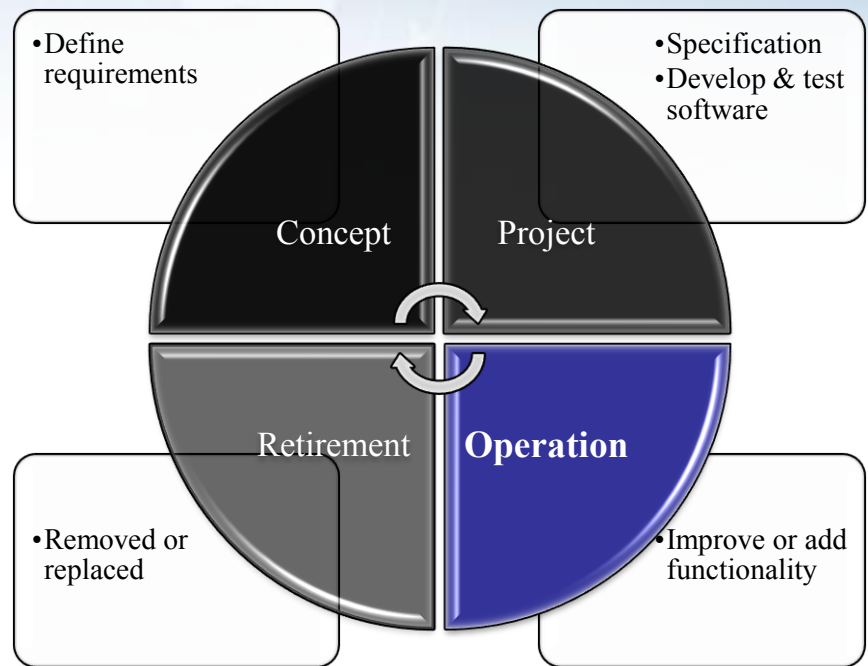
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Customer Benefits

- Software is no longer linked to hardware and O/S restrictions
- Support personnel can access a copy of the VM

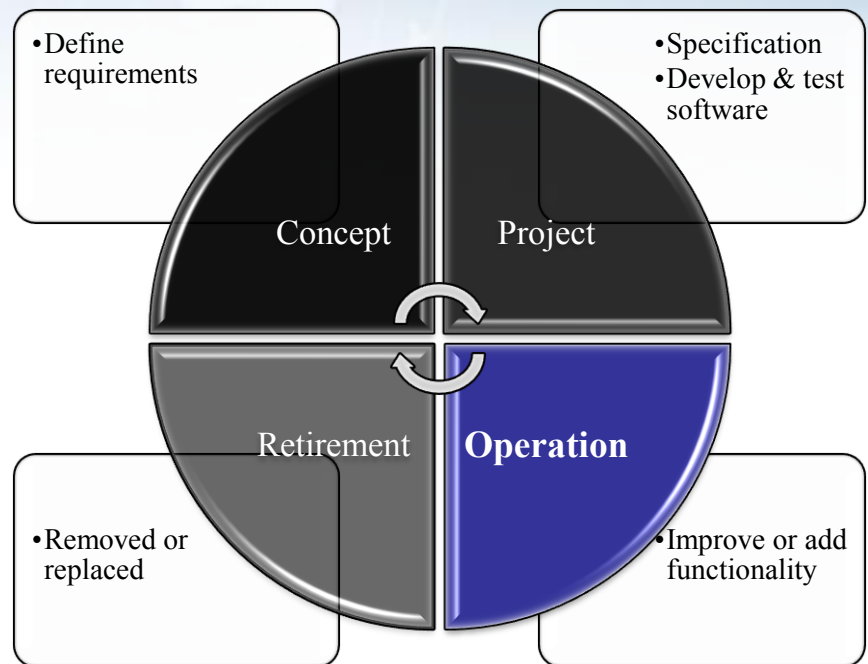
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Customer Benefits

- In case of computer failure the VM can be placed on a standard new computer

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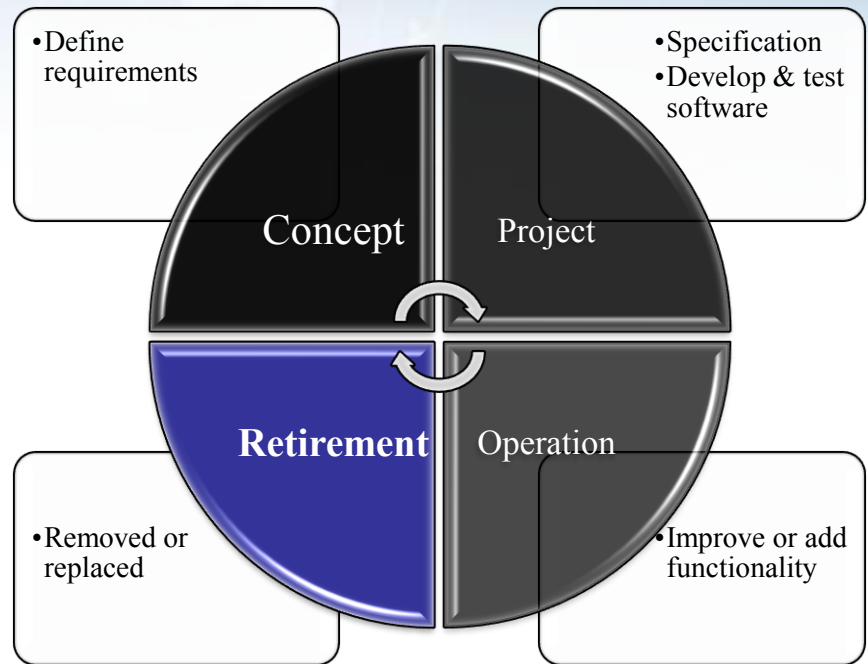
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Retirement Phase

- VMs can be easily transferred and replicated for data access

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Summary

- Virtualization can be used to improve system quality, reduce setup time and provide better customer support.
- Customers who utilize virtual machines can increase the system operating life, improve disaster recovery procedures, and create easier access to data in the retirement phase.