IPv6 Introduction

- IPv6 is an update to the currently most used version of the Internet Protocol, IPv4.

- IPv6 has a number of improvements over IPv4, but the most touted is that it increases the address space:
  - IPv4 address space is theoretically 2^{32}
    - Usually expressed as four 8-bit numbers separated by dots, e.g. `192.168.1.17`
    - However, not all addresses can be used on the Internet, due to the segmentation of addresses
  - IPv6 has a theoretic address space of 2^{128}
    - Usually expressed as eight 16-bit hexadecimal numbers separated by colons, with leading zeroes omitted, e.g. `3fde:65a::45f3:8987:3c5b:cfe:115e`

- Note that since IPv4 defines a number of private network spaces that can be duplicated, as long as they are not routed over the Internet, the address space restriction usually will not apply to internal networks
  - As such, a system could potentially terminate the IPv6 protocol at the load balancer or Web server layer and only use IPv4 on the internal network

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What does IPv6 support for WebSphere Commerce mean?

- We have regression tested use cases that potentially could break functionality on an IPv6 network

- We declare support for running WebSphere Commerce on an "IPv6 network", i.e. Without requiring communication to flow through an adapter using IPv4

- Since many functions in WebSphere Commerce rely on third-party services and software, the support declaration is limited to the WebSphere Commerce stack

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We are now supporting IP version 6 for WebSphere Commerce, but let's first introduce IP6.

IPv6 is a update to the most commonly used version of the Internet Protocol, IPv4.

Version 6 brings a number of improvements over version 4, but the most touted improvement is that it increases the theoretical address space of the Internet.

IPv4 uses a 32-bit address space, usually represented as four 8-bit numbers, in decimal, separated by dots. However, due to the way IPv4 addresses are segmented, not the entire 32-bit address space can be used on the Internet. For example addresses starting with "10" or "192.168" are private addresses that cannot be routed on the Internet.

In contrast, IPv6 has a theoretical address space of 128 bits. IPv6 addresses are usually represented as eight hexadecimal 16-bit numbers, separated by colons. leading zeroes are usually omitted when representing an IPv6 address.

It should be noted that with network address translation, also known as NAT, a site could be using IPv6 addresses externally and IPv4 addresses internally, thus effectively terminating IPv6 at the load balancer level.

What does IPv6 support for WebSphere Commerce mean?

- We have regression tested use cases that potentially could break functionality on an IPv6 network
- We declare support for running WebSphere Commerce on an "IPv6 network", i.e. Without requiring communication to flow through an adapter using IPv4
- Since many functions in WebSphere Commerce rely on third-party services and software, the support declaration is limited to the WebSphere Commerce stack

With IPv6 defined, what does IPv6 support mean in the context of WebSphere Commerce?

We have regression tested use cases that potentially could break functionality on an IPv6 network and with this, we declare support for running WebSphere Commerce using only IPv6 addresses.

It should be stressed that many functions rely on third-party software or services, e.g. payment providers. Since we cannot declare support for such systems and services, you should always verify support for all components before attempting to run WebSphere Commerce on an IPv6 network.