



AMPLIACIÓN DE SISTEMAS OPERATIVOS Y REDES

Grados Ingeniería en Informática

Universidad Complutense de Madrid

TEMA 1. Protocolo IPv6: Direccionamiento

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Introducción: Limitaciones IPv4

- Direccionamiento muy limitado
 - Espacio de direccionamiento limitado (Direcciones de 32 bits ~4K millones)
 - Soluciones:
 - Uso de direcciones sin clases (CIDR)
 - Uso de intranets con direcciones privadas (NAT)
 - Uso de direcciones dinámicas (DHCP)

- Formato completo de la cabecera del paquete
campo opciones)

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rioridad de tráfico o clase de servicio

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nplementada en la mayoría de routers

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implementar de forma completa y eficaz

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Introducción: Características IPv6

- Direcciones de 128 bits
- - Espacio de direcciones mucho mayor (3.4×10^{38} direcciones)
- Formato de cabecera más simple
 - Mayor velocidad de procesamiento en los routers
 - Mejora en el rendimiento de los protocolos de routing
- Posibilidad de autoconfiguración de direcciones
- Mayor soporte para opciones adicionales
 - IPv6 no se codifican en la cabecera, sino en el cuerpo de las cabeceras de extensión
 - espacio para su codificación
 - nuevas opciones en el futuro
 - tanto para autenticación como para encriptación tiempo real (ej. VoIP)
 - basado en prefijos
 - ión desde la versión 4

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Introducción: IP versión 4 y versión 6

Característica	IPv4	IPv6
Longitud de direcciones	32 bits	128 bits
Clases de direcciones	Clase A, Clase B, Clase C	Direcciones sin clase (Classless)
Tipo de direcciones	Unicast, Multicast, Broadcast	Unicast, Multicast, Anycast
Configuración de dirección	Estática (a través de ficheros de configuración) o por DHCP	Autoconfiguración (plug and play) o por DHCP
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	No NAT, aunque no soportado totalmente por routers	Sí
	No	Sí
	No	Sí

Direcciones IPv6: Tipos

Unicast

- Identifican a un único host en la red.
- Un paquete dirigido a una dirección unicast se entregará únicamente al host identificado con dicha dirección IP.

Multicast

- Identifican a un grupo de hosts
- Un paquete dirigido a una dirección multicast se entrega a todos los hosts de dicho grupo de dirección.

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El tráfico broadcast

le hosts.
una dirección anycast se entrega a uno solo de los hosts de dicha dirección, normalmente al más cercano, en función de la métrica de protocolo de routing.

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