

MGEN6

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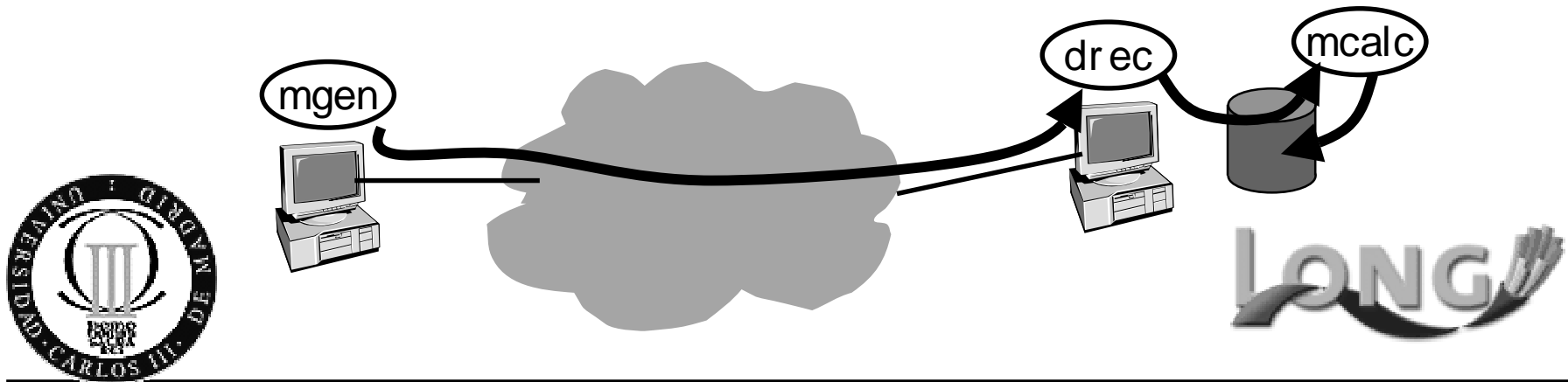
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MGEN measurement tool

- ❑ Multi GENERator Toolset (MGEN) developed by Brian Adamson (Naval Research Laboratory, <http://manimac.itd.nrl.navy.mil/MGEN/>)
- ❑ Allows generating and analyzing UDP flows
 - Both unicast and multicast
- ❑ Three components
 - mgen: Traffic generator
 - Flexible flow definition (concurrent flows, several traffic patterns, etc.)
 - drec: Traffic receiver
 - mcalc: Analysis over received traffic



MGEN6 new capabilities

- Generation of IPv6 extension headers
 - Hop-by-hop
 - ROUTER_ALERT_OPTION
 - JUMBO_PAYLOAD_OPTION # num (>65535)
 - Routing Header
 - ROUTING_HEADER <dir 1> <dir 2> ... <dir 23>
 - Mobility
 - HOME_ADDRESS_OPTION
<dir_of_the_home_address>
 - BINDING_UPDATE # prefix # lifetime <coa>
 - BINDING_ACK # status # lifetime # refresh
 - BINDING_REQ



Example of MGEN6 script

Flow ID	Activate	Destination	Dest. Port	Type of flow
00000-1024	ON	3ffe:3328:1:1f:2c0:26ff:fe70:1358	5000	PERIODIC
02000	ON	HOME_ADDRESS_OPTION	fe80::2c0:26ff:fe10:193f	1 Pkt s/ sec
04000	ON	ROUTING_HEADER	3ffe:3328:1:1f:2c0:26ff:fe70:1358	
10000	OFF	ROUTING_HEADER		
30000	OFF			

Activating HA

Activating RH

Desactivating RH

Flow is finished



MGEN6 programming

- ❑ Using advanced API : RFC 2292bis
 - draft-ietf-ipngwg-rfc2292bis-07.txt
 - Portable interface for
 - ICMPv6
 - MLD (Multicast Listener Discovery)
 - Extension headers, etc.
 - Flow Label ?
- ❑ Supported by FreeBSD and Linux USAGI



MGEN6 programming

❑ Optimizations:

- Resize of socket buffers
- Switch to Round-Robin-Real-Time Scheduling
- Processes are executed with higher priority
- Not needed KAME/USAGI kernels
- Conditional Compilation is bad for understanding

❑ TO-DO (Add more IPv6 extension header support)

- Authentication Header (AH)
- Encapsulation Security Payload (ESP)



Downloads

<http://matrix.it.uc3m.es/~long/software.html>

Or if you use IPv6,

<http://matrix.ipv6.it.uc3m.es/~long/software.html>

More info available on

- Deliverable 3.1. “Requirements and guidelines for distributed laboratories application migration”. LONG Project.
<http://long.ccaba.upc.es/>

