

# SOLUCIONES CON CHR *CLOUD HOSTED ROUTER*

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# mikrotik xperts



consulting  
Soluciones en Telecomunicaciones

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**LLEGAMOS**  
**DONDE OTROS NO LLEGAN**

Pioneros en brindar conectividad a los rincones más recónditos de la Patagonia Chilena

# Nuestros clientes

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## Nuestros Clientes



**Austro** proveedor oficial de NASA en Magallanes. por segundo año consecutivo, **NASA** ha confiado en nuestros altos estándares de calidad al momento de elegir un proveedor de internet para llevar a cabo sus proyectos investigativos en el continente Antártico.



# Temas

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- ¿Qué es CHR?
  - ▣ Licenciamiento
- ¿Qué es AWS?
  - ▣ Ejemplos de implementaciones
- Sistemas de virtualización
- Soluciones con CHR
  - ▣ Laboratorios en GNS3

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# ¿Qué es CHR?

# ¿Qué es CHR?

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- Es una versión de RouterOS diseñada especialmente para funcionar **de forma óptima** sobre sistema de virtualización
- Soporta **arquitecturas x86 y 64-bit**
- Puede ser empleado sobre los sistemas mas comunes de virtualización
  - ▣ Vmware ESX
  - ▣ XEN Server
  - ▣ KVM, QUEMU
  - ▣ VirtualBox
  - ▣ Hyper-V

# Licenciamiento CHR

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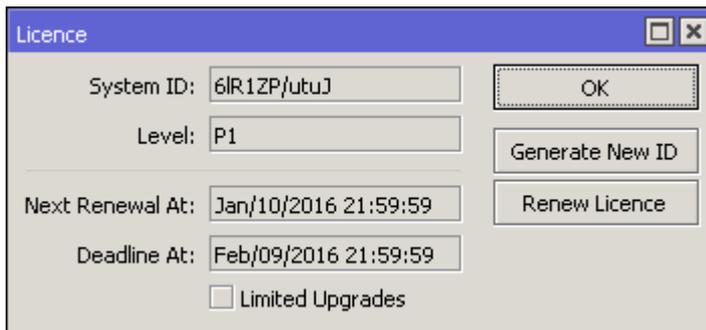
## □ Basado en licencia L6 para x86

Level number	0 (Trial mode)	1 (Free Demo)	3 (WISP CPE)	4 (WISP)	5 (WISP)	6 (Controller)
Price	no key <a href="#">↗</a>	registration required <a href="#">↗</a>	volume only <a href="#">↗</a>	\$45	\$95	\$250
Initial Config Support	-	-	-	15 days	30 days	30 days
Wireless AP	24h trial	-	-	yes	yes	yes
Wireless Client and Bridge	24h trial	-	yes	yes	yes	yes
RIP, OSPF, BGP protocols	24h trial	-	yes(*)	yes	yes	yes
EoIP tunnels	24h trial	1	unlimited	unlimited	unlimited	unlimited
PPPoE tunnels	24h trial	1	200	200	500	unlimited
PPTP tunnels	24h trial	1	200	200	500	unlimited
L2TP tunnels	24h trial	1	200	200	500	unlimited
OVPN tunnels	24h trial	1	200	200	unlimited	unlimited
VLAN interfaces	24h trial	1	unlimited	unlimited	unlimited	unlimited
HotSpot active users	24h trial	1	1	200	500	unlimited
RADIUS client	24h trial	-	yes	yes	yes	yes
Queues	24h trial	1	unlimited	unlimited	unlimited	unlimited
Web proxy	24h trial	-	yes	yes	yes	yes
User manager active sessions	24h trial	1	10	20	50	Unlimited
Number of KVM guests	none	1	Unlimited	Unlimited	Unlimited	Unlimited

# Licenciamiento CHR

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- 60 días de trial full
- Costos
  - ▣ free
  - ▣ p1 perpetual-1 (\$45)
  - ▣ p10 perpetual-10 (\$95)
  - ▣ p-unlimited perpetual-unlimited (\$250)



Licence

System ID: 6R1ZP/utuJ

Level: P1

Next Renewal At: Jan/10/2016 21:59:59

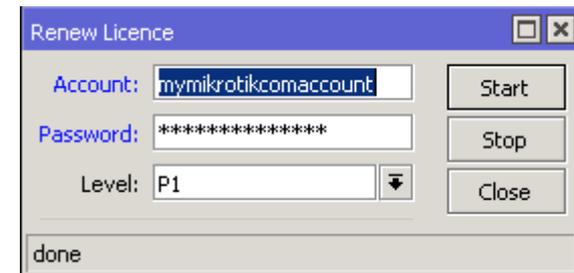
Deadline At: Feb/09/2016 21:59:59

Limited Upgrades

OK

Generate New ID

Renew Licence



Renew Licence

Account: mymikrotikcomaccount

Password: \*\*\*\*\*

Level: P1

Start

Stop

Close

done

# Foro MikroTik

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□ <http://forum.mikrotik.com/>

	RouterOS Virtual Labs by <b>kasparskr</b> » Wed Aug 19, 2015 1:21 am » in General	 	62	22937
	Cloud Hosted Router by <b>normis</b> » Mon Jul 27, 2015 2:56 pm	 ...     	453	63123



normis

MikroTik Support

**MikroTik**

Posts: 20696

Joined: Fri May 28, 2004 11:04 am

Reputation: 154

First RouterOS version: 2.3.18

Location: Riga, Latvia

Cloud Hosted Router

by **normis** » Mon Jul 27, 2015 2:56 pm

We are releasing a test version of an exciting new feature - **Cloud Hosted Router (CHR)**.

It is a Virtual Machine image of RouterOS that has **full functionality** of RouterOS without any kind of conventional RouterOS license, with the limitation of **1Mbit per interface**, in future, we will offer unlimited speed with a paid subscription. This allows you to use RouterOS in training classes, for testing, for experimentation or any other purpose, without the need for 24h trial or Demo license.

We provide a generic (RAW) format IMG, VMDK file for VMWare, VDI for VirtualBox and VHDX for Hyper-V. These are ready to use virtual disk images (add as a virtual hard drive to your VM). These are NOT templates for importing.

**qemu commands for converting images (if you need to convert to another format)**

RAW to VMWare:

Code: Select all

```
qemu-img convert -f raw -O vmdk chr-6.31rc9.img chr-6.31rc9.vmdk
```

RAW to VirtualBox:

Code: Select all

```
qemu-img convert -f raw -O vdi chr-6.31rc9.img chr-6.31rc9.vdi
```

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# ¿Qué es AWS?

# ¿Qué es AWS?

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- Amazon Web Services
  - ▣ Servicios globales de informática
  - ▣ Almacenamiento
  - ▣ Bases de datos
  - ▣ Análisis
  - ▣ Aplicaciones
- Zonas
  - ▣ EE.UU. Oeste (Oregón, California)
  - ▣ EE.UU. Este (Virginia)
  - ▣ América del Sur (São Paulo)
  - ▣ UE (Dublín, Frankfurt)
  - ▣ Asia Pacífico (Seúl, Singapur, Sídney, Tokio)
  - ▣ China (Pekín)



# Servicios AWS

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## Compute

-  **EC2**  
Virtual Servers in the Cloud
-  **EC2 Container Service**  
Run and Manage Docker Containers
-  **Elastic Beanstalk**  
Run and Manage Web Apps
-  **Lambda**  
Run Code in Response to Events

## Storage & Content Delivery

-  **S3**  
Scalable Storage in the Cloud
-  **CloudFront**  
Global Content Delivery Network
-  **Elastic File System** PREVIEW  
Fully Managed File System for EC2
-  **Glacier**  
Archive Storage in the Cloud
-  **Import/Export Snowball**  
Large Scale Data Transport
-  **Storage Gateway**  
Hybrid Storage Integration

## Database

-  **RDS**  
Managed Relational Database Service
-  **DynamoDB**  
Managed NoSQL Database
-  **ElastiCache**  
In-Memory Cache
-  **Redshift**  
Fast, Simple, Cost-Effective Data Warehousing
-  **DMS** PREVIEW  
Managed Database Migration Service

## Networking

-  **VPC**  
Isolated Cloud Resources
-  **Direct Connect**  
Dedicated Network Connection to AWS
-  **Route 53**  
Scalable DNS and Domain Name Registration

## Developer Tools

-  **CodeCommit**  
Store Code in Private Git Repositories
-  **CodeDeploy**  
Automate Code Deployments
-  **CodePipeline**  
Release Software using Continuous Delivery

## Management Tools

-  **CloudWatch**  
Monitor Resources and Applications
-  **CloudFormation**  
Create and Manage Resources with Templates
-  **CloudTrail**  
Track User Activity and API Usage
-  **Config**  
Track Resource Inventory and Changes
-  **OpsWorks**  
Automate Operations with Chef
-  **Service Catalog**  
Create and Use Standardized Products
-  **Trusted Advisor**  
Optimize Performance and Security

## Security & Identity

-  **Identity & Access Management**  
Manage User Access and Encryption Keys
-  **Directory Service**  
Host and Manage Active Directory
-  **Inspector** PREVIEW  
Analyze Application Security
-  **WAF**  
Filter Malicious Web Traffic
-  **Certificate Manager**  
Provision, Manage, and Deploy SSL/TLS Certificates

## Analytics

-  **EMR**  
Managed Hadoop Framework
-  **Data Pipeline**  
Orchestration for Data-Driven Workflows
-  **Elasticsearch Service**  
Run and Scale Elasticsearch Clusters

## Internet of Things

-  **AWS IoT**  
Connect Devices to the Cloud

## Game Development

-  **GameLift**  
Deploy and Scale Session-based Multiplayer Games

## Mobile Services

-  **Mobile Hub**  
Build, Test, and Monitor Mobile Apps
-  **Cognito**  
User Identity and App Data Synchronization
-  **Device Farm**  
Test Android, FireOS, and iOS Apps on Real Devices in the Cloud
-  **Mobile Analytics**  
Collect, View and Export App Analytics
-  **SNS**  
Push Notification Service

## Application Services

-  **API Gateway**  
Build, Deploy and Manage APIs
-  **AppStream**  
Low Latency Application Streaming
-  **CloudSearch**  
Managed Search Service
-  **Elastic Transcoder**  
Easy-to-Use Scalable Media Transcoding
-  **SES**  
Email Sending and Receiving Service
-  **SQS**  
Message Queue Service
-  **SWF**  
Workflow Service for Coordinating Application Components

## Enterprise Applications

-  **WorkSpaces**  
Desktops in the Cloud
-  **WorkDocs**  
Secure Enterprise Storage and Sharing Service
-  **WorkMail**  
Secure Email and Calendaring Service

# EC2

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Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Public IP
<input type="checkbox"/>	AWS-CLI	i-6ad752d9	t2.micro	us-east-1a	stopped		
<input type="checkbox"/>	CRM AUSTRO	i-c3903770	t2.small	us-east-1a	stopped		
<input type="checkbox"/>	ubuntu - kakita	i-aa54c619	t2.nano	us-east-1a	stopped		
<input type="checkbox"/>	elastix	i-27c70194	t2.nano	us-east-1a	running	✔ 2/2 checks passed	
<input type="checkbox"/>	CHR2	i-d15f8362	t2.nano	us-east-1a	running	✔ 2/2 checks passed	
<input type="checkbox"/>	CRM TFNET	i-a0238113	t2.small	us-east-1a	stopped		
<input type="checkbox"/>	CHR3	i-3259d881	t2.nano	us-east-1a	stopped		
<input type="checkbox"/>	CHR1	i-b6b97f05	t2.nano	us-east-1a	running	✔ 2/2 checks passed	
<input type="checkbox"/>	Windows: Austro, Sambil, .NET v4	i-1876f6ab	t2.medium	us-east-1a	running	✔ 2/2 checks passed	
<input type="checkbox"/>	academy, helpdesk, MySQL	i-3bee05d4	t2.micro	us-east-1a	stopped		
<input type="checkbox"/>	Windows: dropbox	i-6608d1c6	t2.small	us-east-1a	running	✔ 2/2 checks passed	

# Costos AWS EC2

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<b>Linux</b>	RHEL	SLES	Windows	Windows con SQL Standard	Windows con SQL Web
Windows con SQL Enterprise					
Región: EE.UU. Este (Norte de Virginia) ▾					
	vCPU	ECU	Memoria (GiB)	Almacenamiento de instancias (GB)	Uso de Linux/UNIX
<b>Uso general – Generación actual</b>					
t2.nano	1	Variable	0.5	Solo EBS	\$0.0065 por hora
t2.micro	1	Variable	1	Solo EBS	\$0.013 por hora
t2.small	1	Variable	2	Solo EBS	\$0.026 por hora
t2.medium	2	Variable	4	Solo EBS	\$0.052 por hora

**5 USD / MES**

# Ejemplo CHR en AWS

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Interface List

Interface Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE

Name	Type	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)	FP Rx Packet (p/s)
aws-chr2	L2TP Server Binding		50.9 Mbps	50.6 Mbps	8 337	8 336	0 bps	0 bps	0	0
aws-chr3	L2TP Server Binding		0 bps	0 bps	0	0	0 bps	0 bps	0	0
aws-scl	L2TP Server Binding		0 bps	0 bps	0	0	0 bps	0 bps	0	0
ether1	Ethernet		54.4 Mbps	53.4 Mbps	8 337	8 346	0 bps	0 bps	0	0

Bandwidth Test (Running)

Test To: 10.55.55.2

Protocol: udp tcp

Local UDP Tx Size: 1500

Remote UDP Tx Size: 1500

Direction: both

TCP Connection Count: 20

Local Tx Speed: 50M bps

Remote Tx Speed: 50M bps

Random Data

User: admin

Password: \*\*\*\*\*

Lost Packets: 0

Tx/Rx Current: 49.9 Mbps/49.9 Mbps

Tx/Rx 10s Average: 49.9 Mbps/49.9 Mbps

Tx/Rx Total Average: 49.9 Mbps/49.9 Mbps

Interface <aws-chr2>

General Status Traffic

Tx/Rx Rate: 50.9 Mbps / 50.6 Mbps

Tx/Rx Packet Rate: 8 337 p/s / 8 336 p/s

FP Tx/Rx Rate: 0 bps / 0 bps

FP Tx/Rx Packet Rate: 0 p/s / 0 p/s

Tx/Rx Bytes: 944.9 MiB / 977.1 MiB

Tx/Rx Packets: 1 300 822 / 1 351 241

Tx/Rx Drops: 1 / 0

Tx/Rx Errors: 0 / 0

Resources

Uptime: 16d 16:58:25

Free Memory: 408.3 MiB

Total Memory: 496.3 MiB

CPU: Intel(R)

CPU Count: 1

CPU Frequency: 2400 MHz

CPU Load: 4 %

Free HDD Space: 460.5 MiB

Total HDD Size: 527.8 MiB

Sector Writes Since Reboot: 8 057 688

Total Sector Writes: 8 057 689

Architecture Name: x86\_64

Board Name: CHR

Version: 6.34 (stable)

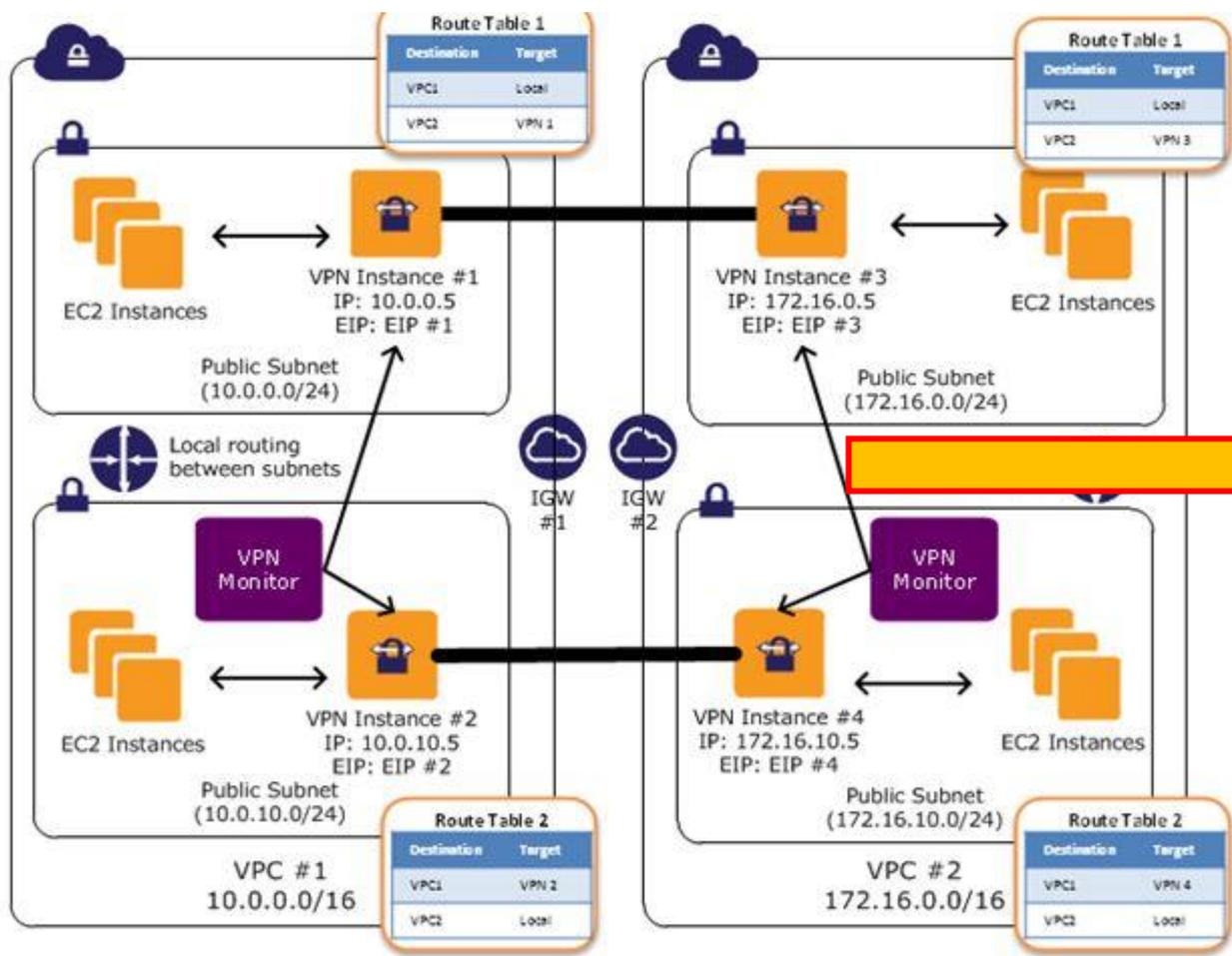
Build Time: Jan/29/2016 10:25:47

enabled running slave Status: connected

# Soluciones VPN

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## □ Servidor VPN en la nube



# Interconexión con Datacenter

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**Interface List**

Interface	Name	Type	L2 MTU	Tx	Rx
S	OK_eoip_voip_eco-camp.natales	EoIP Tunnel	65535		0 bps
RS	OK_eoip_voip_fs.puq	EoIP Tunnel	65535		0 bps
RS	OK_eoip_voip_fs.puq.2	EoIP Tunnel	65535		0 bps
RS	OK_eoip_voip_puq	EoIP Tunnel	65535		0 bps
R	bonding_sxt	Bonding		8.6 Mbps	
RS	vlan-101	VLAN		2.8 Mbps	
R	vlan-201	VLAN		3.0 Mbps	
R	vlan-301	VLAN		363.6 kbps	
R	vlan-401	VLAN		2.2 Mbps	
RS	vlan-501	VLAN		3.8 kbps	
R	bridge_HRS	Bridge	65535		0 bps
R	bridge_WILD-FI	Bridge	1594		2.5 kbps
R	bridge_loopback	Bridge	65535		0 bps
R	bridge_swich-ubnt	Bridge	65535		0 bps
R	bridge_vlan-101	Bridge	1594		0 bps
R	bridge_vlan-501	Bridge	1594		3.9 kbps
R	bridge_voip	Bridge	1594		0 bps
RS	eoip_HRS	EoIP Tunnel	65535		0 bps
RS	eoip_HRS-PAINE	EoIP Tunnel	65535		0 bps
XS	eoip_SOD.WILD-FI	EoIP Tunnel	65535		0 bps
S	eoip_demo.hotspot.puq	EoIP Tunnel	65535		0 bps
X	eoip_movistar_vlan-501_HRS-OPERA	EoIP Tunnel	65535		0 bps
S	eoip_switch-ubnt	EoIP Tunnel	65535		0 bps
RS	eoip_voip-RUBENS_WF	EoIP Tunnel	65535		1456 bps
RS	eoip_voip_El-Chileno	EoIP Tunnel	65535		0 bps
RS	eoip_voip_LiliK	EoIP Tunnel	65535		0 bps
RS	eoip_voip_PatagoniaCamp	EoIP Tunnel	65535		0 bps
RS	eoip_wild-fi_CampingFS	EoIP Tunnel	65535		1456 bps
RS	eoip_wild-fi_Cuemos	EoIP Tunnel	65535		1456 bps
RS	eoip_wild-fi_EcoCamp	EoIP Tunnel	65535		1456 bps
RS	eoip_wild-fi_ElChileno	EoIP Tunnel	65535		4.8 kbps
RS	eoip_wild-fi_Frances-Camping	EoIP Tunnel	65535		1456 bps
RS	eoip_wild-fi_Frances-Domos	EoIP Tunnel	65535		1456 bps
RS	eoip_wild-fi_HRS	EoIP Tunnel	65535		1456 bps
RS	eoip_wild-fi_KIOSKO	EoIP Tunnel	65535		1456 bps

**Route List**

Routes	NextHops	Rules	VRF	Distance	Routing Mark	Pre
AS	0.0.0.0/0	208.67.222.123 recursive via 186.103.198.97 vlan-201		1	vlan-201	
AS	0.0.0.0/0	208.67.220.123 recursive via 186.103.180.57 bridge_vlan-101		1		
S	0.0.0.0/0	208.67.222.123 recursive via 186.103.198.97 vlan-201		2		
AS	0.0.0.0/0	208.67.222.220 recursive via 186.103.227.193 vlan-301		1	vlan-301	
AS	0.0.0.0/0	208.67.220.222 recursive via 186.103.227.185 vlan-401		1	vlan-401	
S	0.0.0.0/0	208.67.222.220 recursive via 186.103.227.193 vlan-301		3		
S	0.0.0.0/0	208.67.220.222 recursive via 186.103.227.185 vlan-401		4		
S	0.0.0.0/0	209.244.0.3 recursive via 190.82.88.185 bridge_vlan-501		5		
AS	0.0.0.0/0	208.67.220.123 recursive via 186.103.180.57 bridge_vlan-101		1	vlan-101	
AS	0.0.0.0/0	209.244.0.3 recursive via 190.82.88.185 bridge_vlan-501		1	vlan-501	
DAo	1.1.1.0/30	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAC	10.17.13.0/24	ether5_SXT-Frigorifico2 reachable		0		10
DAC	10.17.14.0/24	vlan-2702_SXT-CerroNegro-SUR reachable		0		10
DAC	10.17.15.0/24	bridge_WILD-FI reachable		0		10
DAC	10.17.16.0/24	bridge_vlan-101 reachable		0		10
DAo	10.18.12.0/24	172.17.12.10 reachable vlan-2703_BaseBox-CerroNegro		110		
DAo	10.18.13.0/24	172.17.12.10 reachable vlan-2703_BaseBox-CerroNegro		110		
DAC	10.19.0.0/16	bridge_WILD-FI reachable		0		10
DAo	10.20.30.0/30	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.32.72.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAC	10.43.143.0/29	ether7_vmware reachable		0		10
DAC	10.44.144.0/24	bridge_swich-ubnt reachable		0		10
DAC	10.49.64.0/24	vlan-2921 reachable		0		10
DAo	10.53.153.0/29	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.11.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.12.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.13.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.14.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.15.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.16.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.18.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.19.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.20.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.22.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		
DAo	10.57.202.0/24	10.87.23.2 reachable vlan-1563_TEN-BONDING		110		

# Reglas de filtrado y NAT

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#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...	Bytes	Packets	Comment
0	masquerade	srcnat	10.232.102.0/24							9.0 MiB	20 569	
1	masquerade	srcnat	10.232.103.79							5.3 MiB	35 120	
2	masquerade	srcnat	10.255.255.0/24							0 B	0	
3	redirect	dstnat	10.232.102.0/24							359.3 KiB	5 925	
4	dst-nat	dstnat		10.232.101.101	17 (u...		53			8.4 KiB	40	redvoiss
5	dst-nat	dstnat		10.232.101.101	17 (u...		4569			84 B	2	elastix
6	dst-nat	dstnat		10.232.101.101	17 (u...		5060			18.5 KiB	25	elastix
7	dst-nat	dstnat		10.232.101.101	17 (u...		10000-20...			9.0 KiB	53	elastix
8	dst-nat	dstnat		10.232.101.101	6 (tcp)		8081			1280 B	32	ubuntu - blocked page
9	dst-nat	dstnat		10.232.101.101	6 (tcp)		80			1083.4 KiB	18 817	ubuntu - blocked page
10	dst-nat	dstnat		10.232.101.101	6 (tcp)		80			0 B	0	ubuntu - blocked page
11	redirect	dstnat		10.232.101.101	6 (tcp)		80			22.1 KiB	455	web-proxy

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...	Connection State	Connection NAT ...	Bytes	Packets	Comment
0	drop	input								invalid		137.9 KiB	2 211	
1	acc...	input								established related		9.3 GiB	9 208 528	
2	acc...	input			6 (tcp)		8291					616 B	12	winbox
3	acc...	input			17 (u...		1701					1320 B	10	i2p
4	acc...	input			6 (tcp)		8071					22.1 KiB	455	web-proxy
5	acc...	input	10.232.102.0/24		17 (u...		53					359.3 KiB	5 926	dns redirect
6	acc...	input	10.232.101.1		17 (u...	67	68					656 B	2	dhcp
7	acc...	input						all ppp				49.0 MiB	139 642	vpn
8	acc...	input	54.165.129.249		6 (tcp)		22					2080 B	40	AWS GenCert
9	acc...	input	52.70.224.186									0 B	0	CHR2-AWS
10	acc...	input	52.71.156.82									0 B	0	CHR3-AWS
11	drop	input										83.3 MiB	1 441 926	
12	drop	forward								invalid		174.7 KiB	4 459	
13	acc...	forward								established related		4712.5 MiB	8 024 727	
14	acc...	forward						all ppp				75.9 KiB	1 488	vpn
15	acc...	forward							all ppp			35.6 KiB	227	vpn
16	acc...	forward	10.232.102.0/24		1 (ic...							0 B	0	icmp - echo request
17	acc...	forward	10.232.102.0/24		6 (tcp)		80,443					5.4 KiB	92	http, https
18	acc...	forward	10.232.102.0/24		17 (u...		53,123					351.8 KiB	4 740	dns, ntp
19	acc...	forward	10.232.102.11		17 (u...	5060,100...						32.3 MiB	60 660	elastix
20	acc...	forward	10.232.102.11	190.153.25.202	17 (u...	4569						0 B	0	elastix
21	acc...	forward	10.232.102.219									0 B	0	AWS-CLI
22	acc...	forward	64.76.154.0/24									156.6 KiB	799	redvoiss
23	acc...	forward		64.76.154.0/24								0 B	0	redvoiss
24	acc...	forward	10.232.103.79									5.8 MiB	38 749	aws workspaces
25	acc...	forward									dstnat	2791.6 KiB	46 211	dst-nat
26	drop	forward										204.4 KiB	3 411	

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# Sistemas de virtualización

# Sistemas de virtualización

20



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# Laboratorios con GNS3

# Laboratorios con GNS3

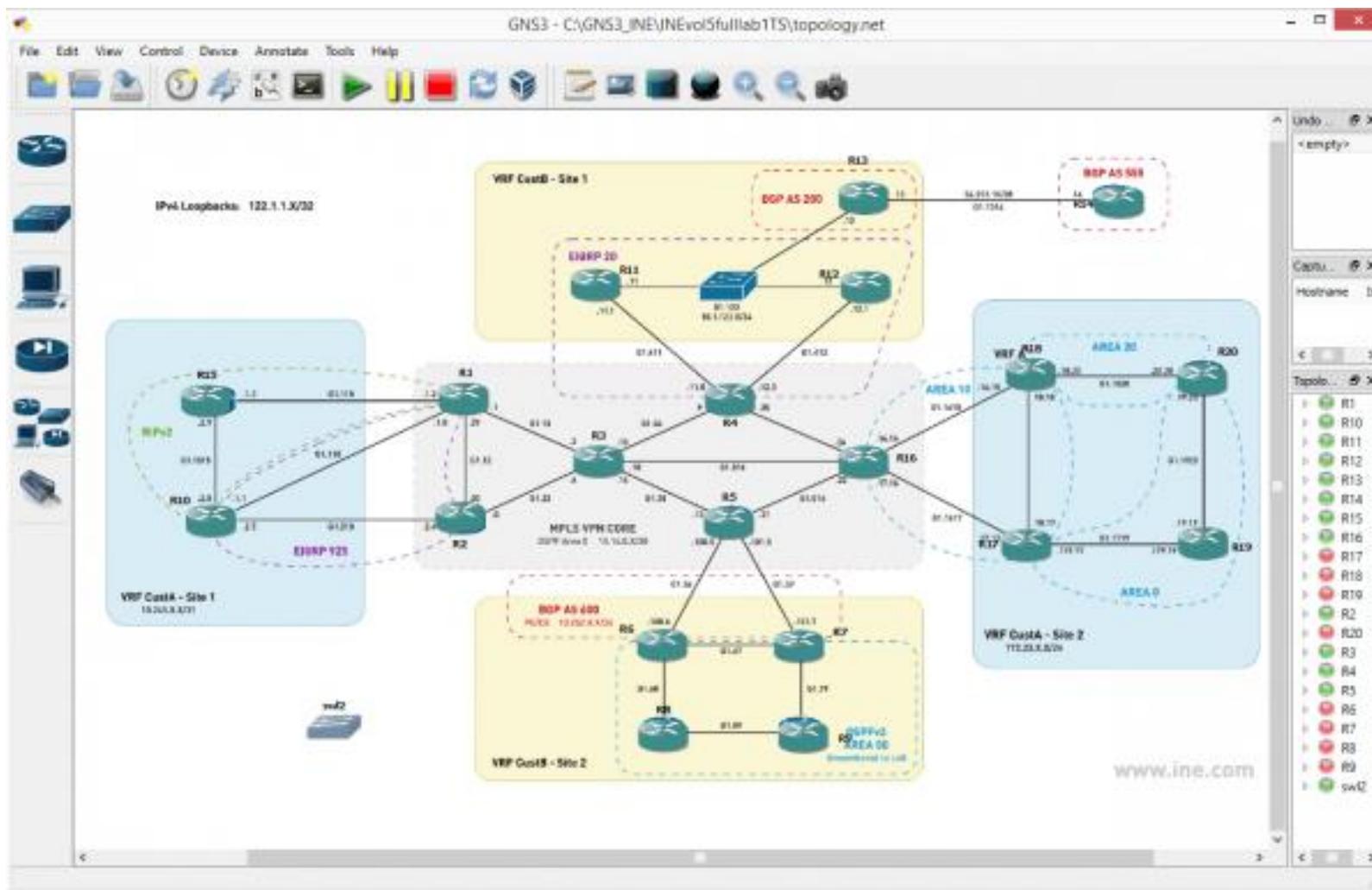
22



The image shows the homepage of the GNS3 website. The background is dark with a faint, abstract pattern. At the top left is the GNS3 logo, a stylized blue and purple creature. To its right is a navigation menu with the following items: SOFTWARE, NEWS, COMMUNITY, SUPPORT, MARKETPLACE, and ACADEMY. In the center-right area, there is a larger version of the GNS3 logo above the text "GNS3®". Below this, the main headline reads "The software that empowers network professionals." in white text. Underneath the headline is a sub-headline: "Join the over 2 million network professionals who rely on GNS3 to build better networks, share ideas and make connections." At the bottom right, there is a prominent blue button with the text "FREE DOWNLOAD" in white capital letters.

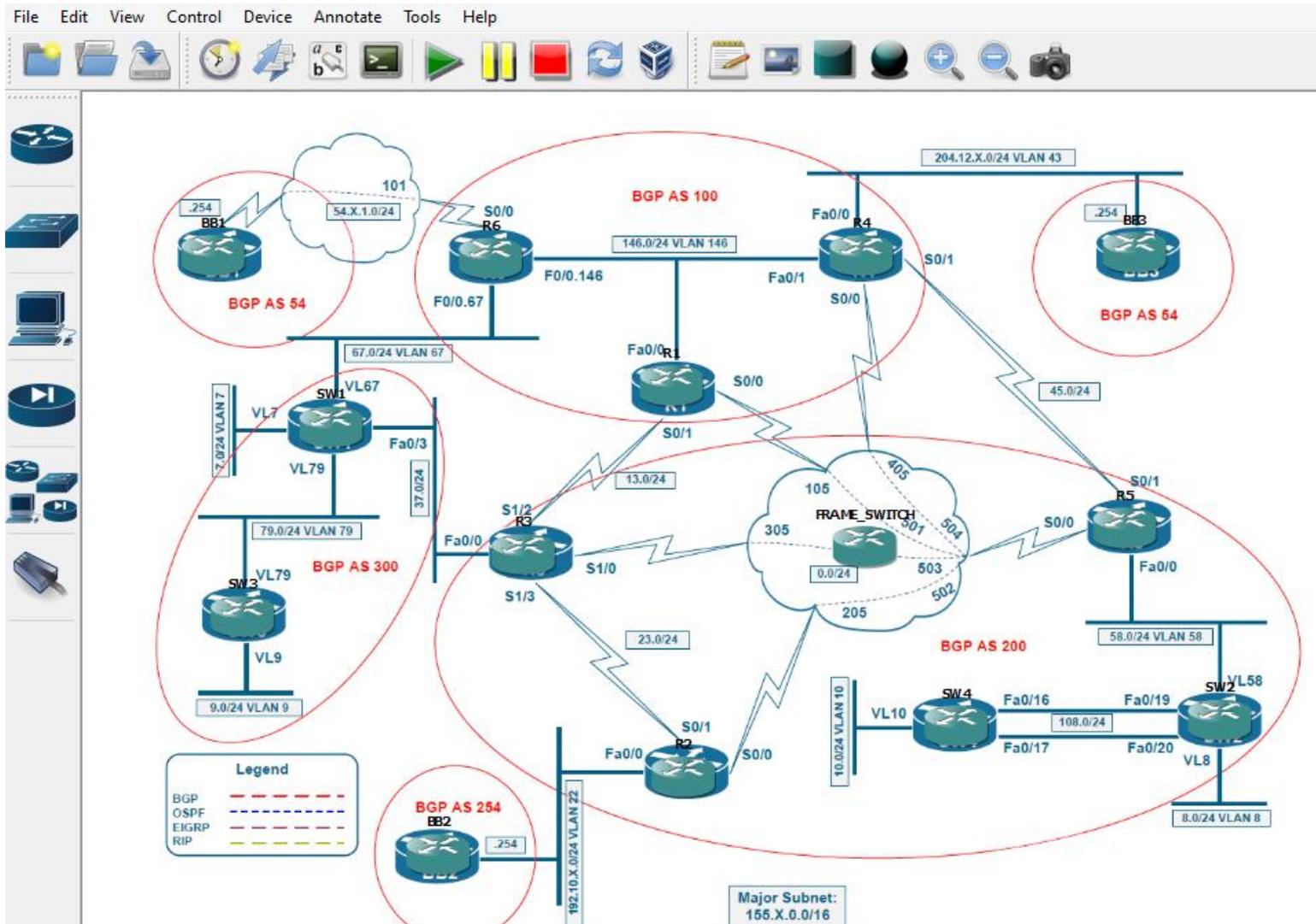
# Laboratorios con GNS3

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# Laboratorios con GNS3

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# Foro MikroTik

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□ <http://forum.mikrotik.com/>

	RouterOS Virtual Labs by <b>kasparskr</b> » Wed Aug 19, 2015 1:21 am » in General	 	62	22937
	Cloud Hosted Router by <b>normis</b> » Mon Jul 27, 2015 2:56 pm	 ...     	453	63123



normis

MikroTik Support

**MikroTik**

Posts: 20696

Joined: Fri May 28, 2004 11:04 am

Reputation: 154

First RouterOS version: 2.3.18

Location: Riga, Latvia

Cloud Hosted Router

by **normis** » Mon Jul 27, 2015 2:56 pm

We are releasing a test version of an exciting new feature - **Cloud Hosted Router (CHR)**.

It is a Virtual Machine image of RouterOS that has **full functionality** of RouterOS without any kind of conventional RouterOS license, with the limitation of **1Mbit per interface**, in future, we will offer unlimited speed with a paid subscription. This allows you to use RouterOS in training classes, for testing, for experimentation or any other purpose, without the need for 24h trial or Demo license.

We provide a generic (RAW) format IMG, VMDK file for VMWare, VDI for VirtualBox and VHDX for Hyper-V. These are ready to use virtual disk images (add as a virtual hard drive to your VM). These are NOT templates for importing.

**qemu commands for converting images (if you need to convert to another format)**

RAW to VMWare:

Code: Select all

```
qemu-img convert -f raw -O vmdk chr-6.31rc9.img chr-6.31rc9.vmdk
```

RAW to VirtualBox:

Code: Select all

```
qemu-img convert -f raw -O vdi chr-6.31rc9.img chr-6.31rc9.vdi
```

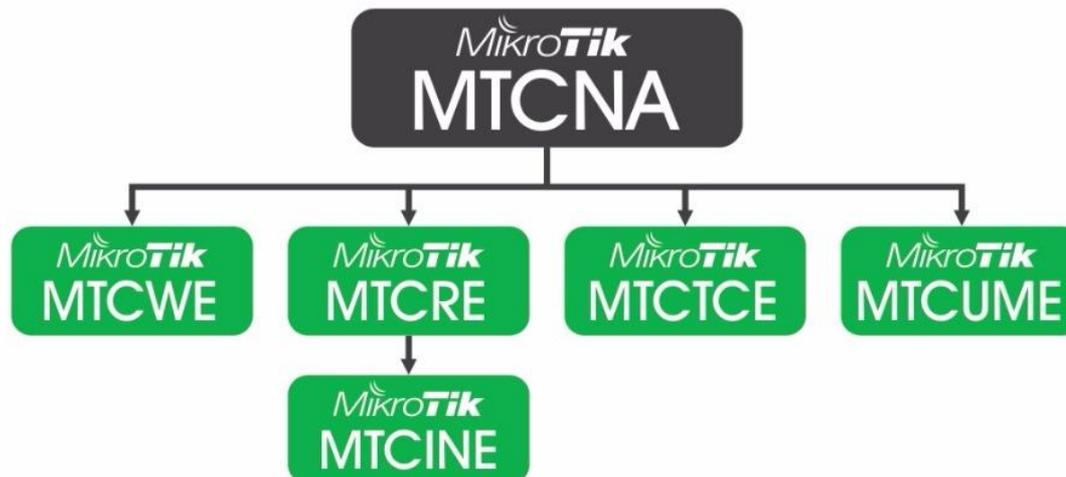
26

# Invitación

# Invitación

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- Cursos de certificación oficial MikroTik



# Invitación

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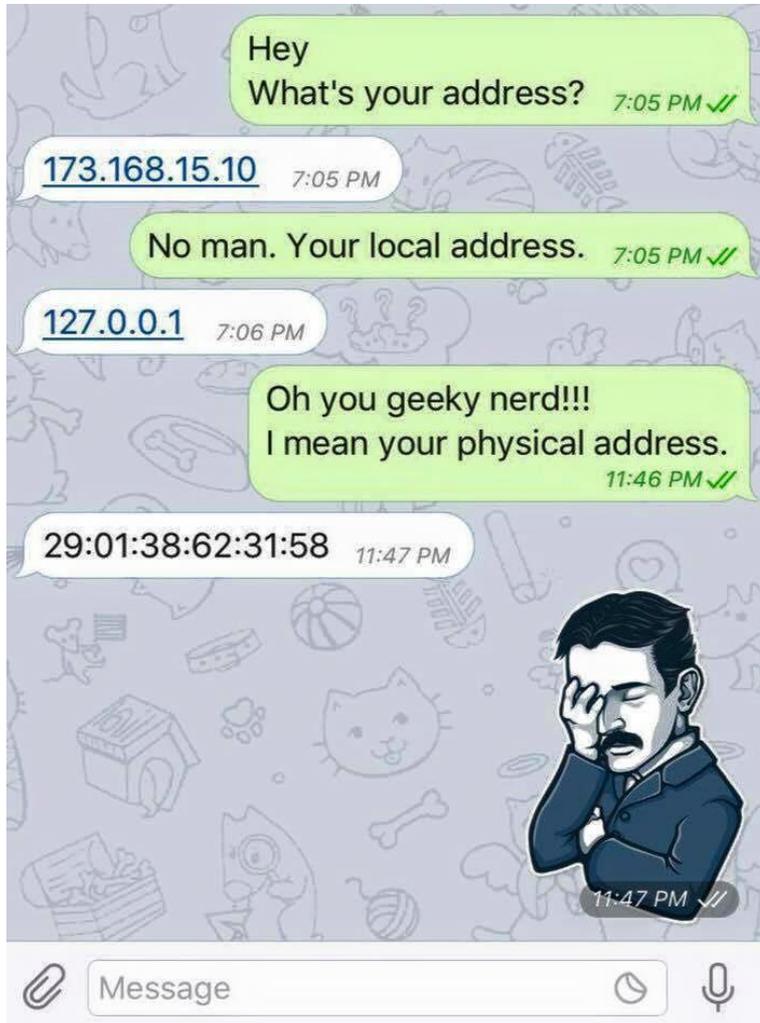


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 AcademyXpertsChile

# ¿Preguntas?

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Gracias por  
su atención