How to run a public-facing service for 27 years (and counting)

presentation by: Marcos Marado

Ubucon Europe
Sintra | Portugal

About me

Marcos Marado, born in 1982. Systems Engineer, Musician, Record Label owner, Free Software advocate, Virtual World God.

I can always and consistently be found in Selva Virtual, but you can also try:

- e-mail: mindboosternoori@gmail.com
- github: https://github.com/marado
- twitter: @mind_booster
- telegram: @marcosmarado

In the begining...

- Universidade de Lisboa was the first Portuguese organization with an Internet connection
- Universidade do Minho, the second, had a 64Kb IP/X.25 line to France
- In 1990, PUUG (Portuguese Unix Users Group) starts the comercialization of Internet connections in Portugal
- In 1992, FCCN starts the registration of .pt domains
- LNEC (Laboratório Nacional de Engenharia Civil) runs the first web server in Portugal, also in 1992

In the begining…

```
===      ____                      ===      EUnet Portugal
===    /      /    /    ___   ___   _/_ ===      PUUG - c/o UNINOVA
===  /----  /    /    /    /___/  /    ===      Quinta da Torre
=== /____  /___/  /    /  /___    /      ===      2825 Monte da Caparica
=====                              =====      PORTUGAL
===== Connecting Europe since 1982 =====      Fax: + 351 (1) 295 77 86

EUnet connectivity is provided in Portugal by PUUG
fesh 1.1.7.94.08.18
Copyright 1994 PUUG - Portuguese Unix Users Group

Welcome to EUnet LOGIN

        Telefones de acesso ao servico:
                LISBOA: (01) 315 0985/6/7, (01) 521 305, (01) 316 0560/72
                PORTO:  (02) 600 2287 (3 linhas)

        NNA X.25: 0942104202

        Bugs e comentarios para: Carlos.Canau@puug.pt

Press a key...
```

Portugal Virtual

- In 1991, LuPa and Goth, who worked on LNEC, found DS9, a text based virtual world hosted in USA
- Things were a bit different in 1991…
  - establishing and maintaining a TCP connection to the USA isn't easy, specially taking account the latency
  - the Internet is the world of academics and researchers, "online" from 9 to 5
  - knowledge and confort with the English language is…less than now
- In 1992's Summer, DS9 administrators give their code to their Portuguese friends, so a Portuguese version can be created
- Cyber Eden (later renamed to Portugal Virtual) is inaugurated in the 1st of October 1992

From Portugal Virtual to Selva Virtual

- the boom of talkers
- talkers in universities
- Selva is created in 1998
- From Selva to Selva V
- The development of Portugal Virtual
- Selva and Portugal Virtual merge into Selva Virtual
- Selva Virtual, the last talker, still evolves

Portugal – the boom of talkers

Talkers Portugueses

CITAL U.Aveiro em zeus.ci.UA.pt 6969	Lost Eden em ubistc.UBI.pt 1414
CyberCiist em ubistc.UBI.pt 5555	Amazonia em ubistc.UBI.pt 8000
Talho em ubistc.UBI.pt 7000	UBI Land em ubistc.UBI.pt 8888
Virtual Democracy em ubistc.UBI.pt 6969	Baco em baco.UC.pt:3000
Cyber Eden 2 em baco.UC.pt:5000	Mala de Cartão em dragao.mat.UC.pt 3000
Europa em europa.dei.UC.pt 5000	CyberISR em orion.dee.UC.pt 3000
Portugal Virtual em ciunix.UC.pt 6969	Portugal Virtual em ciunix.UC.pt 6969
Skull Eden em eureka.UC.pt 3000	Virtual Praxis em ciunix.UC.pt 3333
Esgoto em ciunix.UC.pt 5000	Talho em ciunix.UC.pt 7000
Lost Hell em maxwell.EPPET.pt 6666	Nuts City em maxwell.EPPET.pt 1111
The Nuts City em maxwell.EPPET.pt 1111	Wild Sex em maxwell.EPPET.pt 1850
Paradise Hotel em maxwell.EPPET.pt 6969	The Playboy Talker em maxwell.EPPET.pt 9876
PC Bocas Bar em maxwell.EPPET.pt 9999	Moosaico em moo.di.UMINHO.pt 7777
Moovieland em moo.di.UMINHO.pt 6969	Porto em crazy.fe.UP.pt
Portugal dos Viciados em crazy.fe.UP.pt 6969	Atlantis Moo em naomi.fe.UP.pt 7777
Esquadra Talker em tom.fe.UP.pt 9000	Eniac Talker em eniac.INESC.pt 3000
Sagres em sagres.INESC.pt 3000	Lost Eden em alfa.IST.UTL.pt 1414
PTUniland em ial.UTAD.pt 5000	

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Portugal – talkers in universities

URBI et ORBI - Jornal On-line da UBI, da Covilhã, da Região e do Resto

Alunos da UBI nos Talkers e no IRC

Engate cibernético:
You've got mail à portuguesa

Amados por uns e desprezados por outros os canais de IRC e os endereços de Talkers da Telnet vão ganhando cada vez mais adeptos dentro da Universidade da Beira Interior e, apesar da função que cada utilizador lhes atribui, todos lhe reconhecem um carácter quer lúdico quer formativo quer psicológico.

Há pouco tempo estreou nos cinemas portugueses um filme de Nora Ephron com Meg Ryan e Tom Hanks nos principais papéis. "Você tem correio" - assim era a tradução de uma frase que adquire muito

Os talkers e o IRC ganham cada vez mais adeptos

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Portugal – Selva is created in 1998
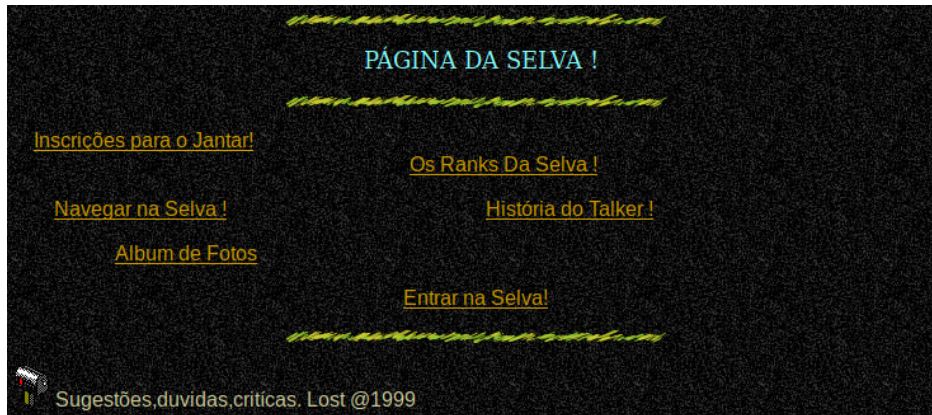
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Let's try it out!

The color challenge

Name	FG Code	BG Code	VGA[nb 2]	Windows Console[nb 3]	Windows PowerShell[nb 4]	Windows 10 Console[nb 5] PowerShell 6	Terminal.app	PuTTY	mIRC	xterm	X[nb 6]	Ubuntu[nb 7]
Black	30	40	0,0,0			12,12,12	0,0,0					1,1,1
Red	31	41	170,0,0	128,0,0		197,15,31	194,54,33	187,0,0	127,0,0	205,0,0	255,0,0	222,56,43
Green	32	42	0,170,0	0,128,0		19,161,14	37,188,36	0,187,0	0,147,0	0,205,0	0,255,0	57,181,74
Yellow	33	43	170,85,0[nb 8]	128,128,0	238,237,240	193,156,0	173,173,39	187,187,0	252,127,0	205,205,0	255,255,0	255,199,6
Blue	34	44	0,0,170	0,0,128		0,55,218	73,46,225	0,0,187	0,0,127	0,0,238[nb 9]	0,0,255	0,111,184
Magenta	35	45	170,0,170	128,0,128	1,36,86	136,23,152	211,56,211	187,0,187	156,0,156	205,0,205	255,0,255	118,38,113
Cyan	36	46	0,170,170	0,128,128		58,150,221	51,187,200	0,187,187	0,147,147	0,205,205	0,255,255	44,181,233
White	37	47	170,170,170	192,192,192		204,204,204	203,204,205	187,187,187	210,210,210	229,229,229	255,255,255	204,204,204
Bright Black	90	100	85,85,85	128,128,128		118,118,118	129,131,131	85,85,85	127,127,127	127,127,127		128,128,128
Bright Red	91	101	255,85,85	255,0,0		231,72,86	252,57,31	255,85,85	255,0,0	255,0,0		255,0,0
Bright Green	92	102	85,255,85	0,255,0		22,198,12	49,231,34	85,255,85	0,252,0	0,255,0	144,238,144	0,255,0
Bright Yellow	93	103	255,255,85	255,255,0		249,241,165	234,236,35	255,255,85	255,255,0	255,255,0	255,255,224	255,255,0
Bright Blue	94	104	85,85,255	0,0,255		59,120,255	88,51,255	85,85,255	0,0,252	92,92,255[nb 9]	173,216,230	0,0,255
Bright Magenta	95	105	255,85,255	255,0,255		180,0,158	249,53,248	255,85,255	255,0,255	255,0,255		255,0,255
Bright Cyan	96	106	85,255,255	0,255,255		97,214,214	20,240,240	85,255,255	0,255,255	0,255,255	224,255,255	0,255,255
Bright White	97	107	255,255,255	255,255,255		242,242,242	233,235,235	255,255,255	255,255,255	255,255,255		255,255,255

The security challenge

Name ⇕	COLOR ⇕	VT100 ⇕	TLS ⇕
Atlantis	Yes	No	Yes
Axmud	Yes	Yes	Yes
BeipMU	Yes	No	Yes
BioMUD	Yes	Yes	No
BlowTorch	Yes	No	No
CMUD	Yes	Yes	Yes
GGMUD	Yes	No	No
GMUD	Yes	No	No
Gnome-Mud	Yes	No	No
JamochaMUD	Yes	No	Yes
KBtin	Yes	No	Yes
KildClient	Yes	No	Yes
KMuddy	Yes	No	No
Lyntin	Yes	No	No
mcl	Yes	No	No
muby	Yes	No	No
Mudlet	Yes	No	Yes
MudMagic	Yes	No	No
MUDRammer	Yes	No	Yes
MUSHclient	Yes	No	No
Portal	Yes	No	No
Potato	Yes	No	Yes
Powwow	Yes	Yes	No
Pueblo/UE	Yes	No	No
SimpleMU	Yes	No	No
Soiled	Yes	Yes	No
TinTin++	Yes	Yes	Yes

The hosting challenge

- talkers often ran as unauthorized services on university networks
- end of tolerance from university administrators was swift
- hosting alternatives were scarce
- *gratis* hosting alternatives almost impossible to find
- talker.com – the first and largest site dedicated specifically to hosting talker servers – closed in 2009

More info about talker hosting: `http://talkersource.com`

Portugal Virtual's third to last dedicated server
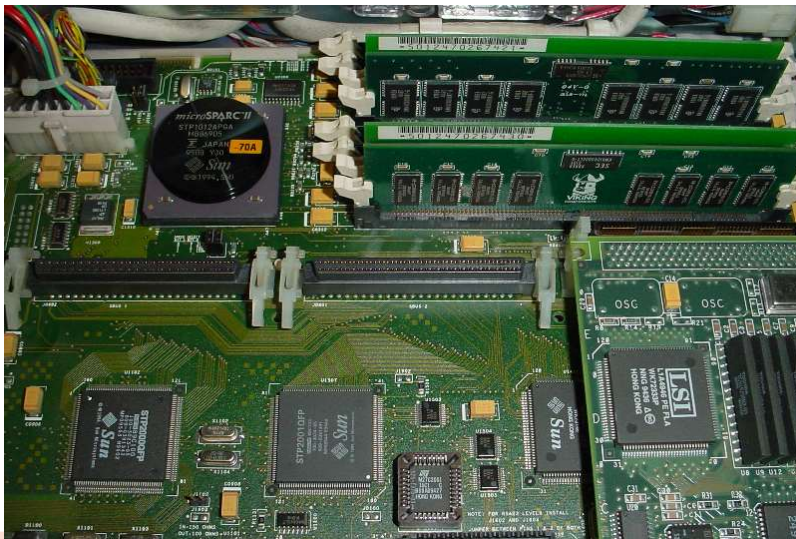
Selva: one picture, two (prior) servers
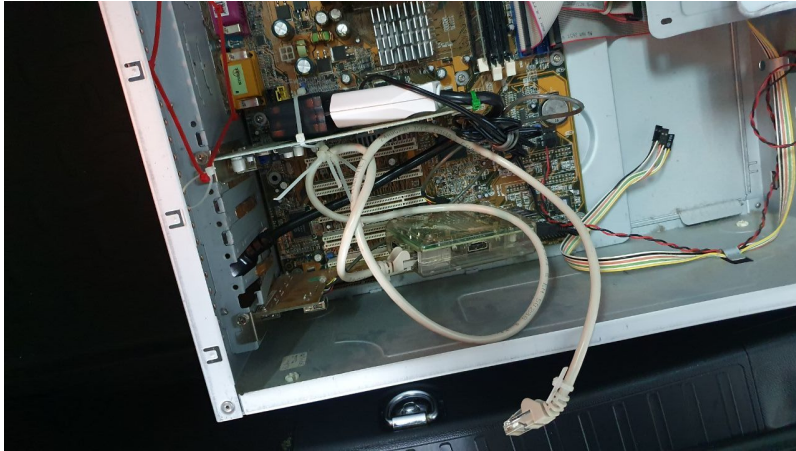
The websense challenge

- University connections changed in nature
- Internet in users homes became a reality
- The aging of the userbase – connected from work
- Connecting to a telnet service from your work's PC?
- The web client as a solution for all things
  - wide browser support needed
  - allowed technologies
  - allowed ports
  - encrypted communication
- (With a little DNS help)

Current status: hosting

Current status: architecture

The UNIX way – Do One Thing and Do It Well

- mamnuts – the actual talker server, with a telnet port (8888)
- tcpserver – providing other TCP ports (that redirect to 8888)
- stunnel – providing the telnet over SSL ports
- telnet-ssl – an unicode-friendly telnet client
- shellinabox – webserver that connects to the local telnet port
- midgaard_bot – telegram bot
- nutsbot – base code used by Hattai, the talker bot
  - gawk – used to connect the bot to the utilities it uses
  - hattai-fortune – a script that gives news
  - sdcv – utility for work with dictionaries
  - pyjoke – python jokes, giving Hattai a dubious sense of humor
  - fortune && fortunes – cookies!
- git – code versioning and backups

Current status: top user's online time

Current status: number of logins per year
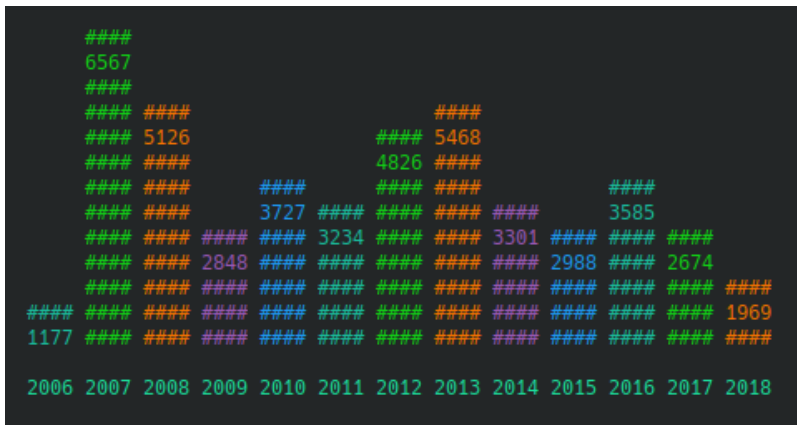
Current challenges

- stunnel – failure to start on boot (since 2007…) – `https://bugs.launchpad.net/ubuntu/+source/stunnel4/+bug/137472`
- telnet-ssl – failure to cope with some UTF-8 strings (since 2005!) – `https://bugs.debian.org/cgi-bin/bugreport.cgi?bug=749322`
- python – python 2 will EOL at 1st Jan 2020 – `https://pythonclock.org/`
- TalkerNode – Mamnuts replacement, still lacking essential features – `https://github.com/marado/TalkerNode/milestones`
- midgaard_bot – lacking maintainer – `https://github.com/Jereviendrai/midgaard_bot/issues`
- web client – up shellinabox's game, or finally switch to websockets only support? – `https://caniuse.com/websockets`
- #FixCopyright – Article 11 (#linktax) will impact, Article 13 (#webfilters) might
- HA…

Federation: 1988-2018 RIP

From "A SAD ANNOUNCEMENT: FEDERATION 2 WILL BE CLOSING IN A MONTH":

- security requirements have changed
- HTTPS – we need to sort out a security certificate
- GDPR rules also add complications to any organisation holding customer data
- the problems of having to set everything up again on a new server
- the game's networking and security needs a thorough overhaul
- we would need to start supporting the new IPV6 addresses
- Alan will be 70 next year, and I'll be 60, so neither of us has the stamina that we used to

A decentralized future?

Disclaimer about this presentation

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Thank you