



MIDs and Netbooks and Handsets, Oh My!

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MontaVista Linux Deployments

Telecom/DataCom

- NEC
- Cisco
- Alcatel/Lucent
- Tellabs
- Ericsson
- Fujitsu
- Verivue
- Viasat
- Motorola
- Hughes NW
- OKI
- Soapstone
- LG-Nortel
- UT Starcom
- March NW
- SafeNet
- ETRI
- Agilent
- Iskratel
- Eurotel
- Italtel
- Nokia
- Vonage
- Harris
- Taiwan Mobile
- NTT DoCoMo
- Ambit
- Galois
- EpiValley



Consumer Elec.

- Mitsubishi
- Victor Co
- Thomson
- Matsushita
- Philips
- Yamaha
- Audiocodes
- Hitachi
- Sony
- Sanyo
- Pioneer
- Bosch
- LG
- Sanyo
- TCL
- JRC
- GSI
- Teradek



Mobile Devices

- NEC
- Motorola
- Panasonic
- Samsung
- Next Wave
- Softbank
- Hisense Mobile
- Alpha NW
- Sharp
- Dell
- RIM
- ASUS
- Garmin
- Microelectronics Tech



Medical Equipment

- St Jude Medical
- Guidant
- KeyMed
- ELA Medical
- Radox Labs



Automotive

- Novero/VW
- GM
- Hyundai
- Clarion
- EB/Audi



Partners

- Intel
- Freescale
- Texas Instruments
- Emerson
- Cavium
- Infineon
- Radisys
- AMCC
- NXP
- Access
- Movial



Mil/Aero

- EADS
- Northrup Gruman
- Taser Int'l
- ITT
- NASA
- US DOD
- Selex
- Fin Meccanica
- Rockwell Collins
- Raytheon
- Boeing
- Korea Defense Agency
- Lear
- General Dynamics
- Sarabhai Space Ctr
- BAE Systems
- Eltag
- Thales



Office Automation

- HP
- Canon
- Océ
- Ricoh
- Kyocera Mita
- Fuji Xerox
- Seiko Epson
- Linx Printing
- NetApps



Industrial Automation

- Tektronix
- Trane
- Visys
- Varian
- Tyco
- Schlumberger
- Fuji Machine
- Sequoia Voting Systems



Founded in 1999.
Over 55 million deployed devices.

- **Deployments**

- Over 50 million handsets shipped with Mobilinux
- 22 of 25 announced LiMo phones based on MontaVista Mobilinux

- **Customers and Devices**

- Motorola mobile handsets
- NEC & Panasonic – W-CDMA 3G handsets
- Datang Mobile (China) – Mobilinux 4.1 handsets
- Several other projects



Examples of Linux Phones in DoCoMo Network



NEC N703i μ



NEC N703iD



NEC N904i



Panasonic P703i



**Panasonic
P904i**



Panasonic P703i μ

Instant ON, Always ON, Always CONNECTED

- **Instant ON**
 - Fast OS boot (2sec to splash screen, 5sec to app startup)
 - Fast resume (500ms)
 - Application startup (instant)
- **Always ON**
 - Optimized for low power environments – ARM architecture
 - Differentiated by battery life
 - Battery life optimized with DPM
- **Always CONNECTED**
 - Connection management (with auto VPN)
 - Seamless roaming and handoff
 - WiFi and worldwide 3G support
 - Fully integrated I/O: Bluetooth, USB, SDIO

Performance

- preempt-RT
- Linux fast boot
- gLibc with pre-linking
- Jazelle

Footprint

- µLibc with NPTL
- LOT, application/kernel XIP

Power Management

- kernel DPM and App APIs

Graphics & Sound

- directFB
- GTK
- gStreamer
- ALSA sound

Connectivity and I/O

- unionFS
- eCryptFS
- IPv6
- WiFi
- Bluetooth
- USB, USB-OTG
- SDIO

Security

- µSELinux
- eCryptFS
- IPsec and crypto framework

Debug

- KGDB over USB
- LTTng
- oProfile
- mPatrol

Development Tools

MontaVista Mobilinux



Android, Limo, Moblin and...other prototypes



- ***“The kernel.org community is no longer delivering a quality commercial product, it delivers cutting edge technology and depends on commercial distributions to clean it up and make it into a commercial product”***
- – *Andrew Morton (2.6 kernel maintainer) at Linux Foundation Summit 2007*

Kernel Version	Changes per Release
2.6.11	4,041
2.6.12	5,565
2.6.13	4,174
2.6.14	3,931
2.6.15	5,410
2.6.16	5,734
2.6.17	6,113
2.6.18	6,791
2.6.19	7,073
2.6.20	4,983
2.6.21	5,349

Table 2: Changes per kernel release

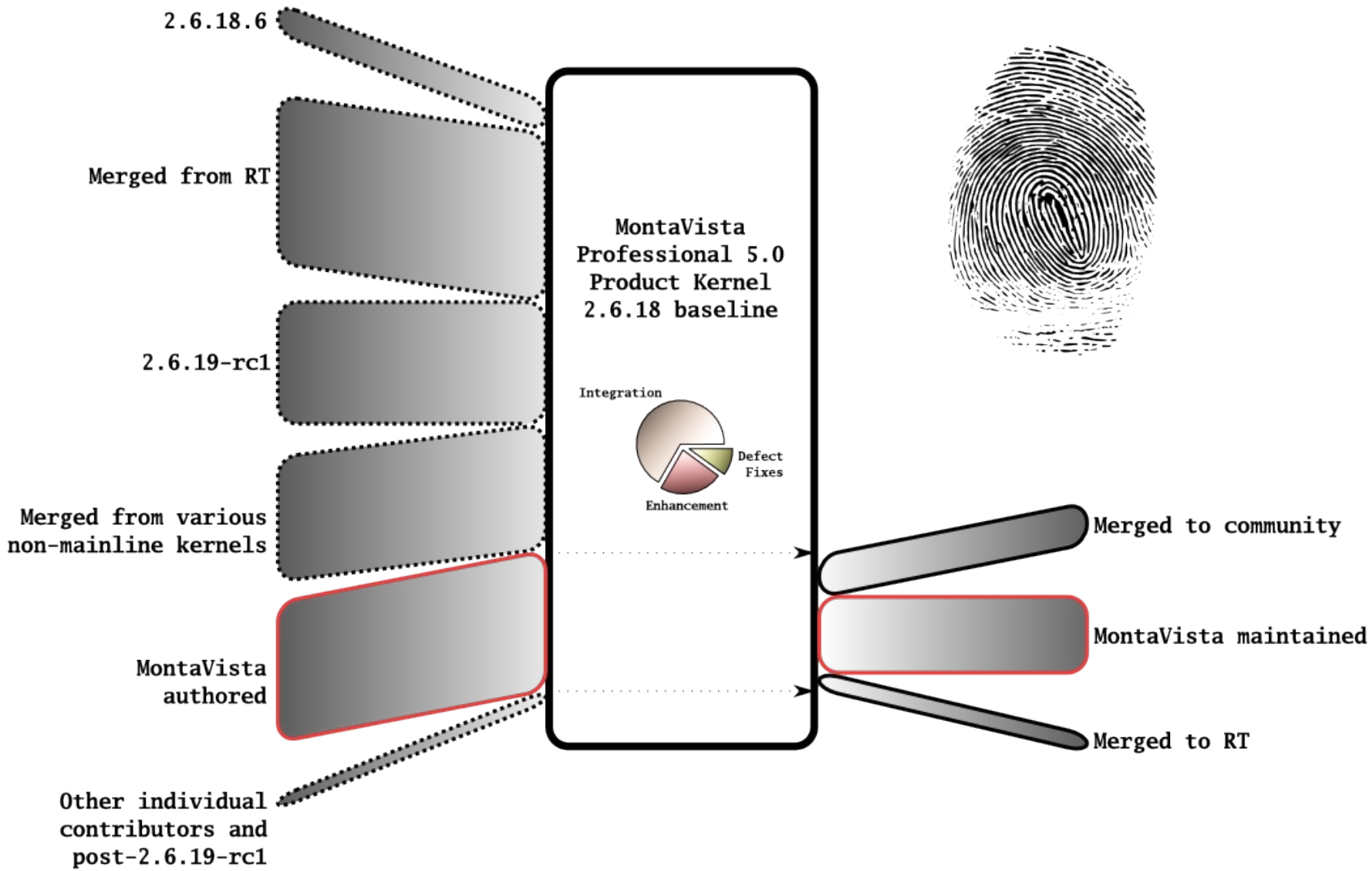
Kernel Version	Lines per Hour
2.6.11	77.6
2.6.12	59.3
2.6.13	120.4
2.6.14	105.5
2.6.15	90.0
2.6.16	102.8
2.6.17	49.4
2.6.18	72.3
2.6.19	129.3
2.6.20	77.4
2.6.21	74.1

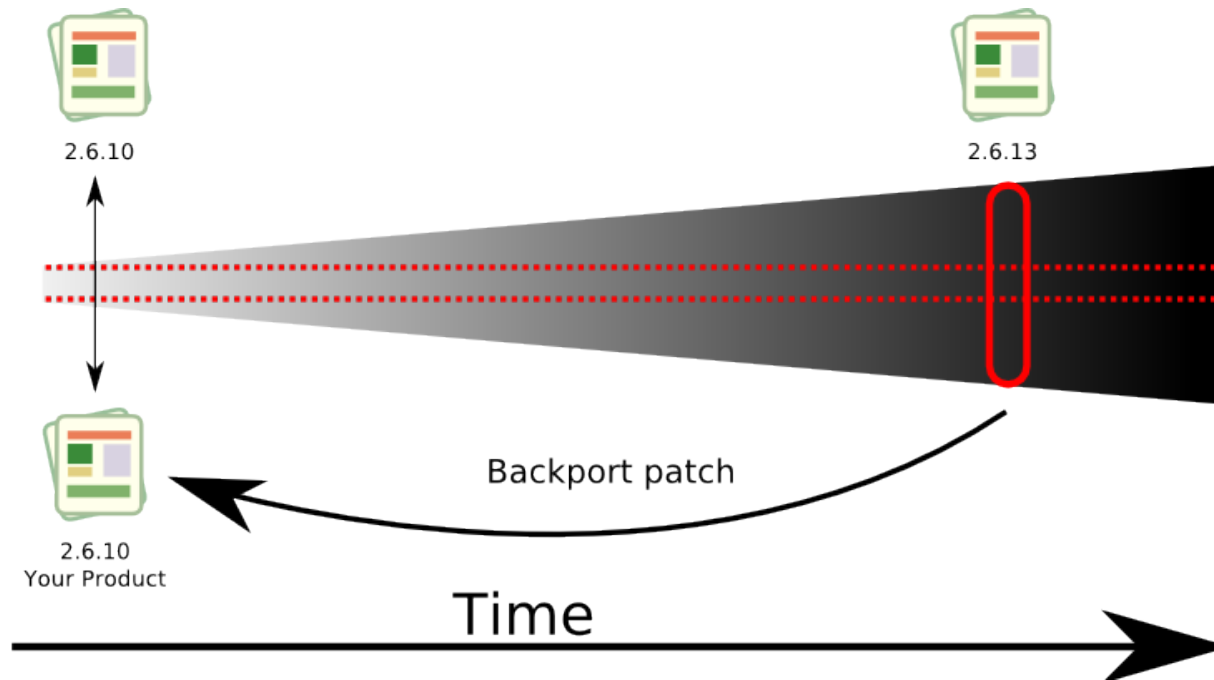
Table 5: Lines per hour by kernel release

Category	Lines of Code	% of kernel
core	330,637	4%
drivers	4,304,859	52%
architecture	2,127,154	26%
network	506,966	6%
filesystems	702,913	9%
miscellaneous	263,848	3%

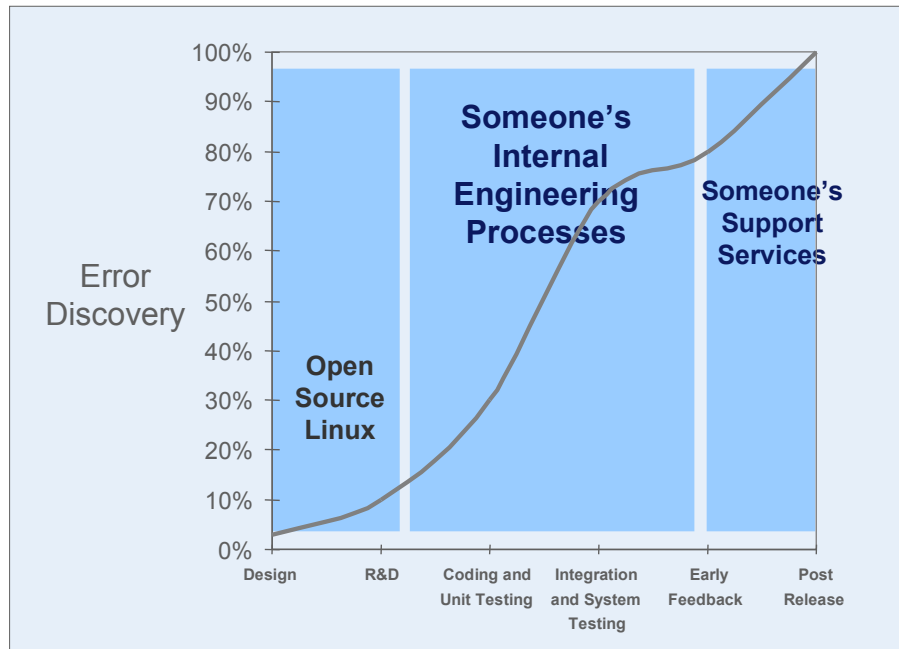
Table 7: 2.6.21 Kernel size by lines of code

Who manages the chaos, tracks the patches, performs the QA.





Who Wants to Own the Back-End?



Company	Open Source Kernel contributions (2005-2008)
1. RedHat	11.2%
2. Novell	8.9%
3. IBM	8.3%
4. Intel	4.1%
5. Linux Foundation	2.6%
6. SGI	2.0%
7. MIPS	1.6%
8. Oracle	1.3%
9. MontaVista	1.2%
10. Google	1.1%

MontaVista is the only embedded software company listed in top 30, between giants Oracle and Google.

Source: Linux Foundation www.linux-foundation.org/publications/linuxkerneldevelopment.php



Thank You

