H30/VM/Linux S390 in Research domain at CLIPS (Grenoble, France)

• Teaching phase
  – Legacy Mainframe
  – Unix/Linux oriented systems

• Research phase
  – Research domain
  – H30/Linux
  – Evolution towards Linux servers

• Conclusion
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Teaching phase

• LEGACY teaching
  – Teach a mainframe culture, a business data processing, which is nowadays the domain with the most demands (people, SW, HW…)
  – Practical environments (directed works) on Unix/Linux

• System teaching

• Teach the main system criteria
  – Do exercises in Linux environment
    • Simplicity, easy implementation, reliability, become a real
    • Use the huge possibilities proposed by OpenSource community
Research phase

• Why H30?
  – Migrate applications on Linux (open systems, parallel servers)
  – Test & size different capacities/powers for huge servers (large transaction numbers)
  – Promote this kind of architecture & Linux with z/VM Hypervisor
    • In Research world
    • More especially to young research workers
Grenoble environment

- IMAG (Informatique et Mathématiques Appliquées de Grenoble)
  - CLIPS (Communication langagière et Interaction Personne Système)
    - GETA (Groupe d’Etude pour la Traduction Automatique)
    - GEOD (Groupe d’Etude de l’Oral et du Dialogue)
    - MRIM (Modélisation et Recherche d’Information Multimédia)
- CTL (Centre de Technologie du Logiciel)
GETA

- Created in 1960s by Bernard Vauquois, managed now by Christian Boitet
- Near 25 people
- Worldwide reputation for TAO innovations
- Several developed applications for Ariane-G5 (from models to operational systems)
- Numerous works
- Participation in C-START & Nespole! Projects in speech TAO
ARIANE-G5 Software

• Generator of automatic languages management tools
  – Methodological, theoretical, practical aspects
  – Testing on several languages (Fr, Ru, De, En, Ba, Ch, Jp, Por)

• Developed in IBM environment (PLI, …) on VM/CMS since 1960s
Different computers

• 360/67 of CICG (Centre Inter-universitaire de calcul de Grenoble)
• Hours rental in Ecully
• 4331
• 4361
• 9221-130
• H30
• And always VM…
• …And now Linux
Why VM & Linux/390

- VM is an hypervisor
  - Immediate available power
  - Automatic reconfiguration
  - Automatic & easy management
  - All is centralized on only one server
  - Several operating systems on only one server
    - Owned systems
    - Open systems
Linux/390 in Grenoble

- **Linux**
  - Red Hat with 8 virtual machines
  - Open source
  - Portable
  - Present Technology
  - Open,
  - Well-known & easy use
  - More and more reliable
  - More and more used
    - Industry
    - Teaching & Research
    - Public and private sector
    - ...
VM/390 Architecture

• Available parallel power
• Reliability
• Large servers
• Non-disruptive environment
  – VM/Linux in development
  – VM/Linux in production
• Easy sizing
Linux in laboratory (GETA-CLIPS)

• Aim : Mainly use H30/VM/Linux like an application server with numerous users
• H30 is also more dedicated to a sizing a exploitation environment than a development one, thanks to Linux’easy applications deployment.
Linux applications

• Ariane
  – Non-disruptive application for Ariane-G5 (since 1960)
  – New « portable » version on Linux Ariane-Y (work in progress)

• PILAF
  – Morphological analyser

• UNL (United Networking Language, (United Nations)
  – Interactive convertor ± (text → UNL)
  – Automatic unconvertors (UNL → text)
  – 16 languages
Existing or expected Servers

- Papillon (base lexicale multilingue coopérative)
  - French, English, Japanese, German, Chinese, Vietnamese, Malay

- ERIM
  - Integrated translating platform on network
  - Free access to data (bilingual dialogues)

- ENHYDRA
  - Development of open software (for dynamic web sites)
  - H30 utilized by developers to create Linux/390 version
• CSTAR III
  – International Consortium
  – Aim: Online translation of dialogues
  – World event in July 99
  – IBM support
Conclusion

- H30/VM/linux
  - Hypervisor
    - Non-disruptive, automatic & easy power management (automatic partitioning), virtual machines shared, servers consolidation, power shared…
  - Linux/390
    - Portable, reliable
    - OpenSource world
  - Some issues to get last released versions
  - Virtualisation