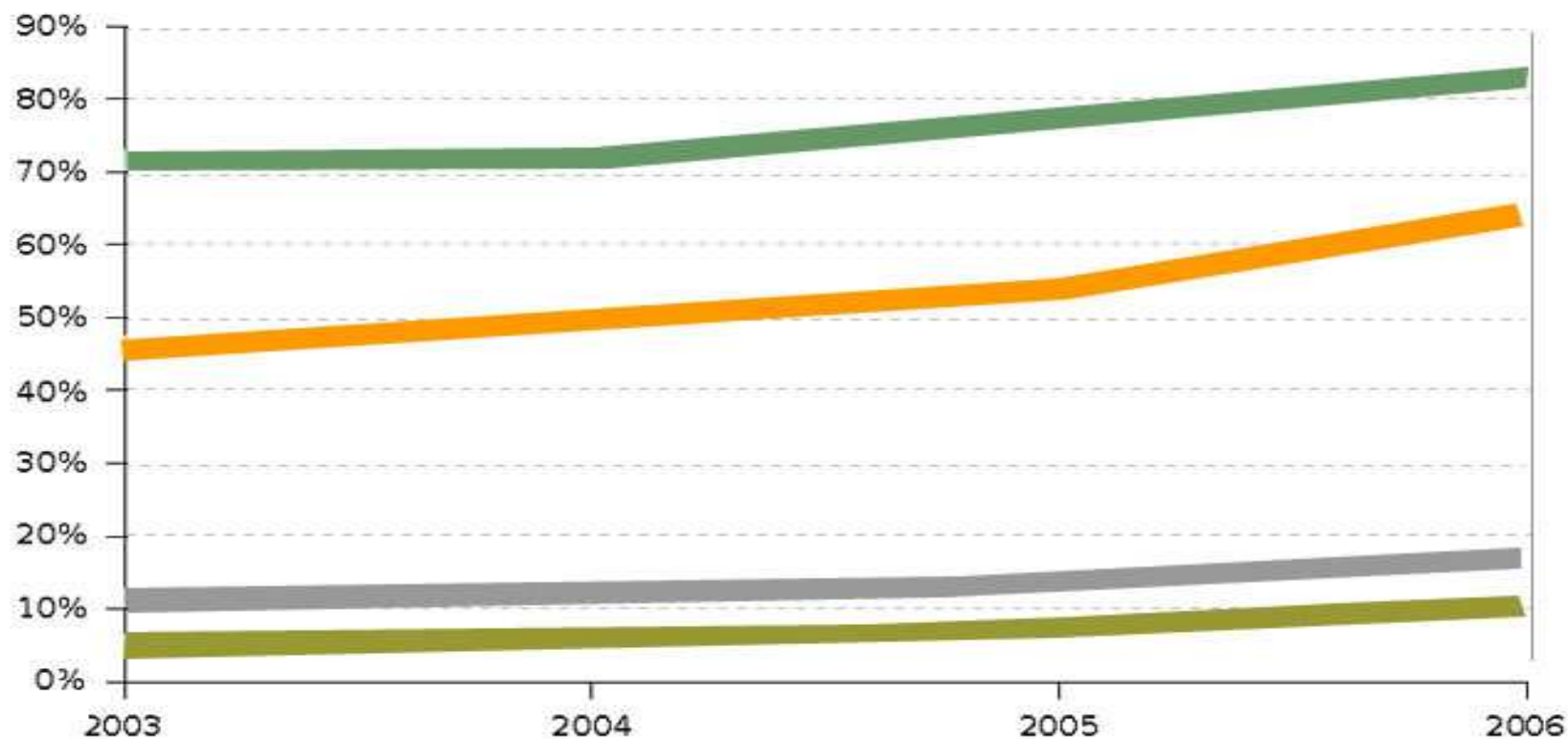


How Brazil uses Information and Communication Technologies (ICTs)



Logistics and Information Technology Secretariat
Planning, Budget, and Management Ministry
Brazilian Government

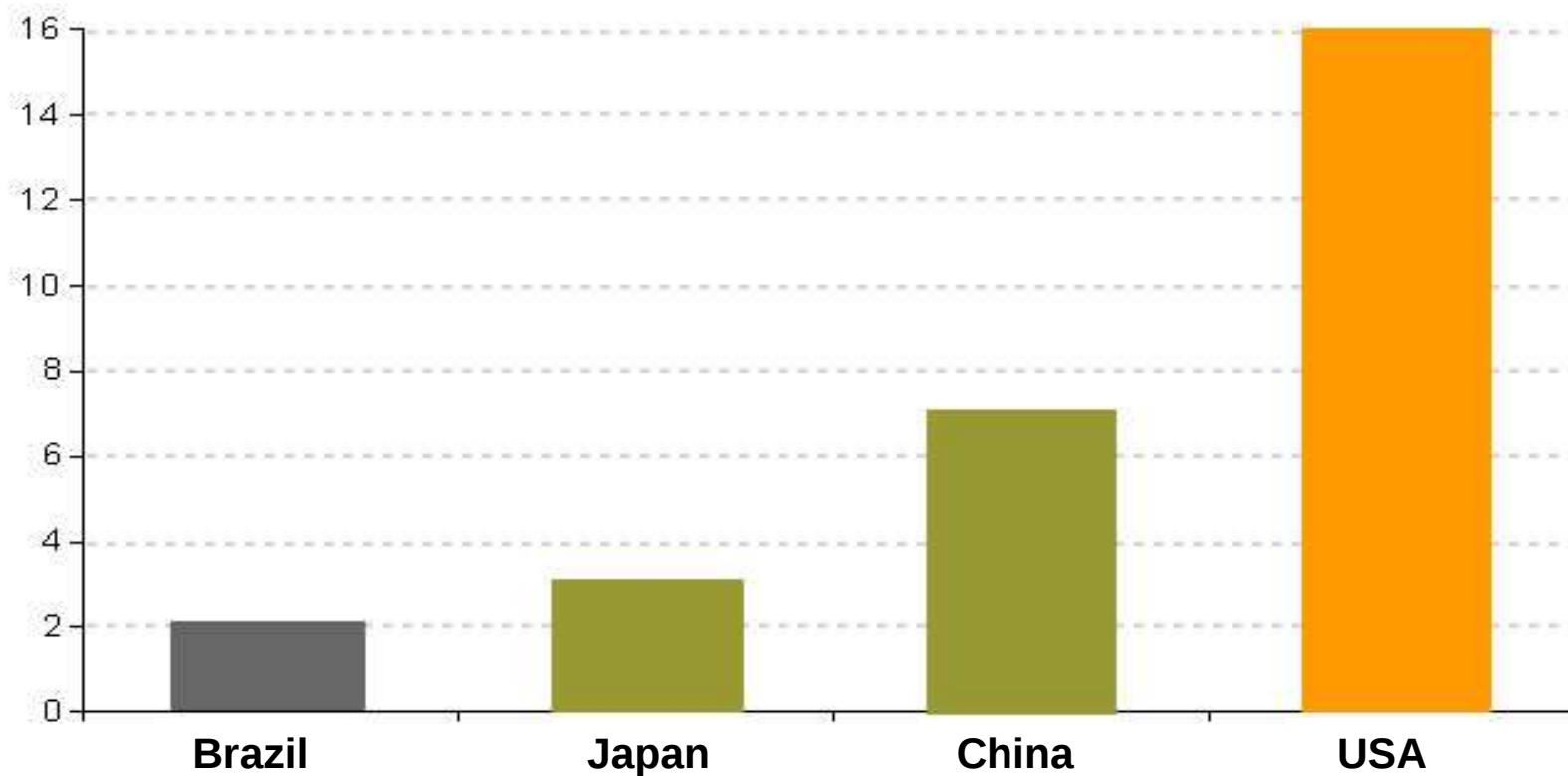
Households with Internet access



- US\$ 2,000 - US\$ 4,000
- Until - US\$ 4,000
- More than US\$ 4,000
- Total

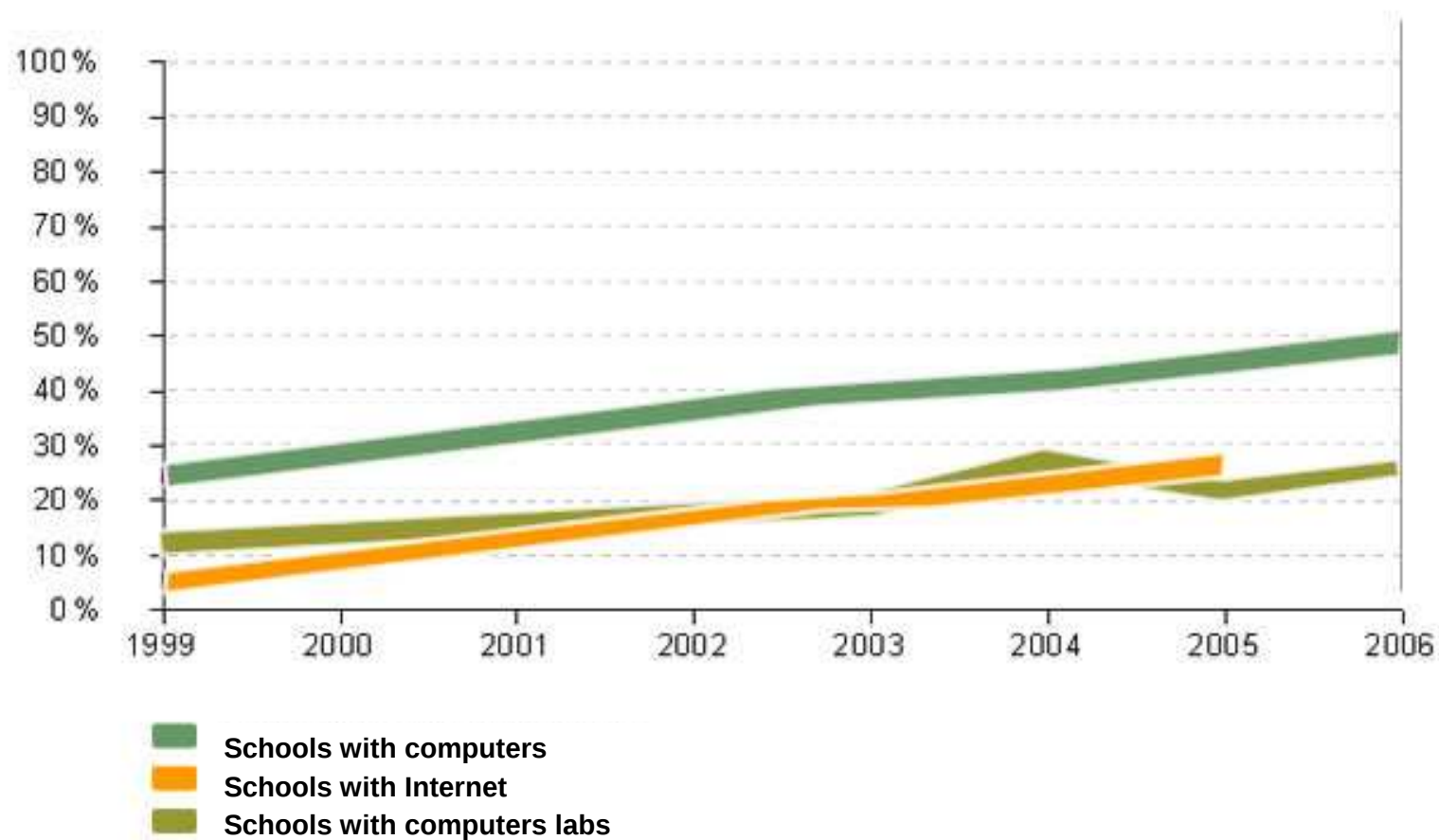
Source: IBGE/National Household Sample Survey - PNAD

Computers sold – in millions of units



Source: IBOPE, NetRatings, IDC(International Data Corporation) e E-bit - 2007

School access to computers and Internet



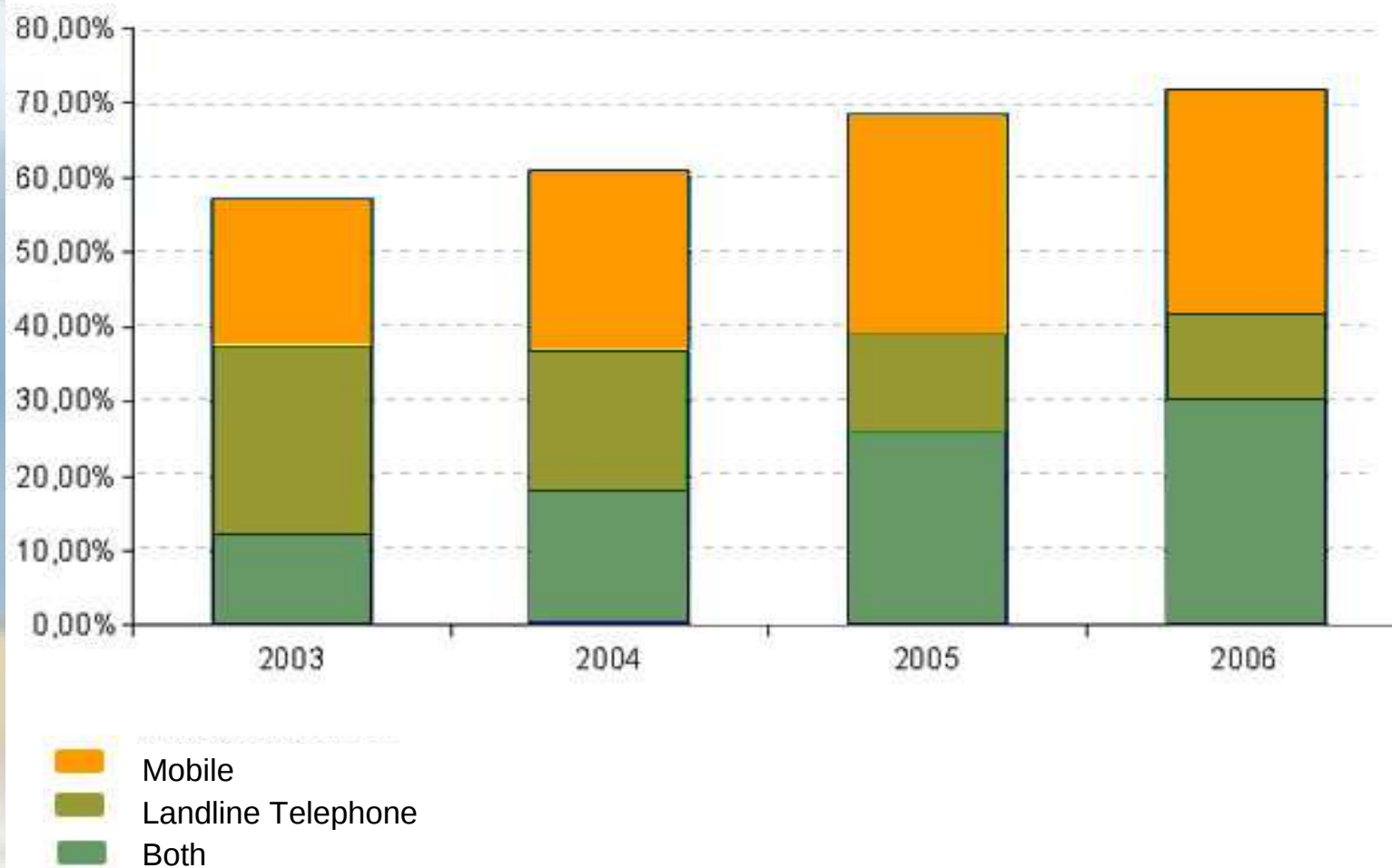
Source: INEP

Evolution of Industrial Production of Office Machines and Informatics Components



Source: IBGE/ Monthly Survey of Industrial

Telephone Ownership households with total revenue until US\$ 2,000



Source: IBGE/National Household Sample Survey - PNAD

Successful Initiatives Federal Government

Federal Revenue

- ☐ **Federal Income Tax** – electronic declaration
 - ☐ In 2004 first release of the multiplatform java program to declare the income tax
 - ☐ In 2007, more than 98% of the Income Tax has been sent by Internet
 - ☐ In 2009, the java program will be the only program available to declare the income tax.

Social Security

- ☐ **Social Security Portal** – provides information and services on the Internet;
- ☐ **Call Center** - – gives complete information to citizens by telephone;
- ☐ Largest payroll of the country, with more than **20 million** beneficiaries per month.

Successful Initiatives Federal Government

Education

- ❑ **University for All Program (ProUni – Universidade para Todos)** - provides scholarships to low income students
 - ❑ Enrollment is done exclusively in the Internet. Digital certificates (released by PKI – Brazil) are used in the PROUNI system.
 - ❑ In the first year, ProUni offered 112 thousand scholarships in 1,142 colleges. **400 thousand** new scholarships will be offered in the next years.
- ❑ **e-Proinfo** – An e-learning project that has already trained **50 thousand students**.

Successful Initiatives Federal Government

Internet connection in Brazilian Public Schools

- ✓ Brazil has 142 thousand public schools
 - 26 thousand are connected to the internet (18%)
 - 92% of these are connected at low speed;
 - 8% of these are connected at speed greater than 512 Kbps

- ✓ The goal of 55 thousand connections of the program “Internet connection in public schools” represents:
 - 39% of all brazilian public schools
 - 84% of all students of the country - 36,5 million

Successful Initiatives Federal Government

Broadband Internet in Brazilian Public Schools

- ✓ **The connection will be Free**
- ✓ 55.771 Public Urban Schools will be connected to the internet with broadband access
- ✓ The timeline for this project is 3 years(2008 - 2010)
- ✓ Maio/2008: Connection of 2.000 schools
- ✓ Speed: 1 Megabit for each connection with the possibility to grow. (Broadband)
- ✓ The connection will be free for 18 years: 2008 - 2025

Successful Initiatives Federal Government

Security

- ❑ Information Integration National System for Justice and Public Safety (INFOSEG)
 - ❑ More than 50 thousand users;
 - ❑ The public safety, judicial and inspection systems were integrated in more than **180 federal and provincial entities**;
 - ❑ The 27 provinces of Brazil were integrated.

Successful Initiatives Federal Government

Electronic Invoice

- ❑ National model of electronic invoice to replace paper invoice;
- ❑ 1.5 million e-invoices until October/2007 (US \$ **7 billion**);
- ❑ Adopted in Bahia, Goiás, Maranhão, Rio Grande do Sul and São Paulo.

ICP-Brazil

- ❑ **ICP-Brazil** - Public key infrastructure established in 2001: regulates the use of digital certificates.
 - ❑ 2007: **52.3 thousand certificates released.**

Successful Initiatives Federal Government

Computer for All

- ☐ Reduced interest rates financing computers with government approved patterns;
- ☐ Equipment with free and open softwares;
- ☐ Industry and revenue growth with job creation.

Computer Reconditioning Centers - CRCs

- ☐ Retrieve computers and peripherals discharged;
- ☐ **3 Computer Reconditioning Centers** implemented;
- ☐ Inspired by Canada's *Computers for Schools* project.
- ☐ All the computers are delivered with free and open software

Successful Initiatives Federal Government

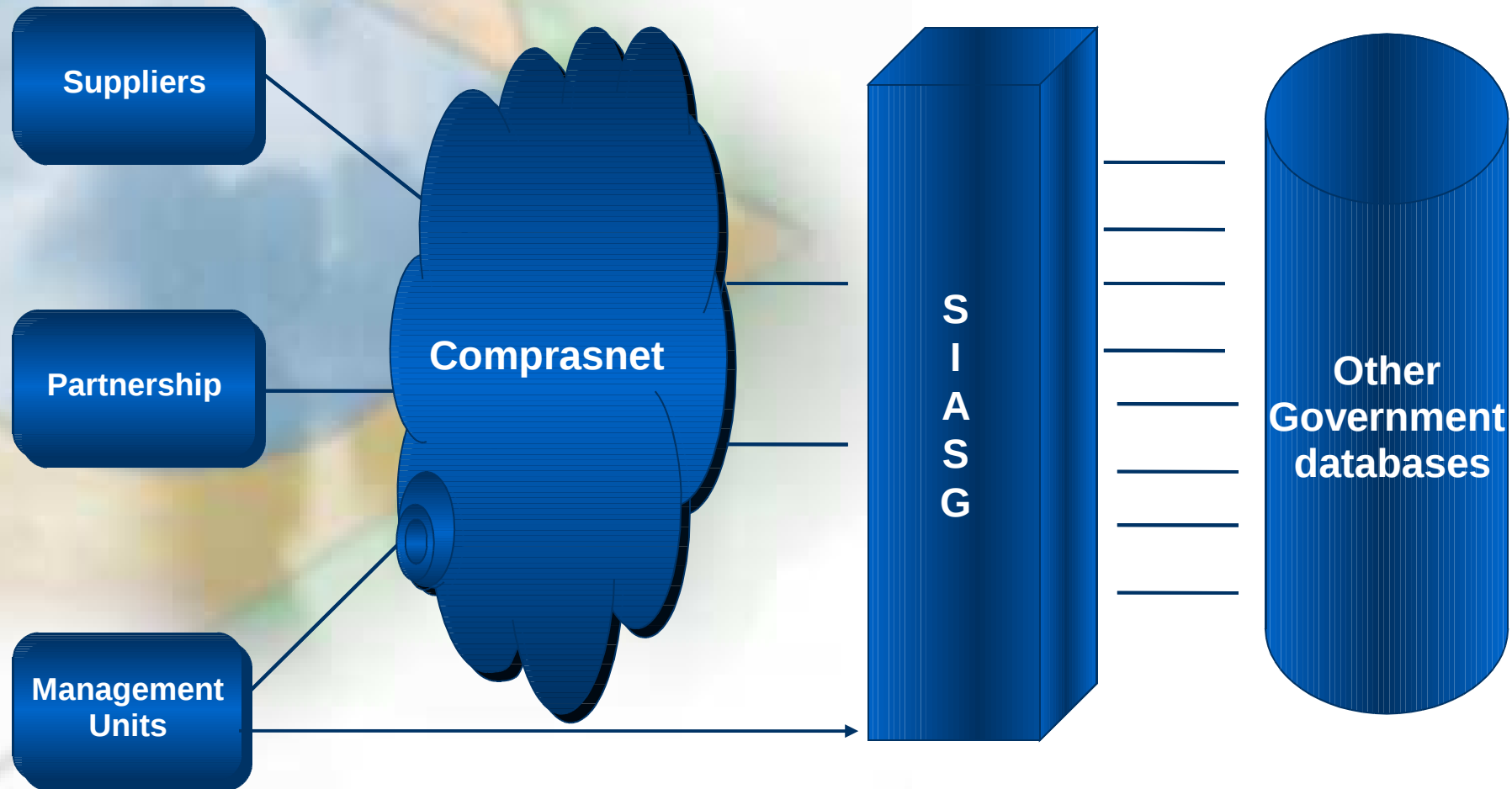
Standards

Federal Government released standards of accessibility and interoperability.

- ☐ e-PING - e-Government Interoperability Standards www.eping.e.gov.br.
- ☐ e-MAG – e-Government Acessibility Model www.governoeletronico.gov.br.

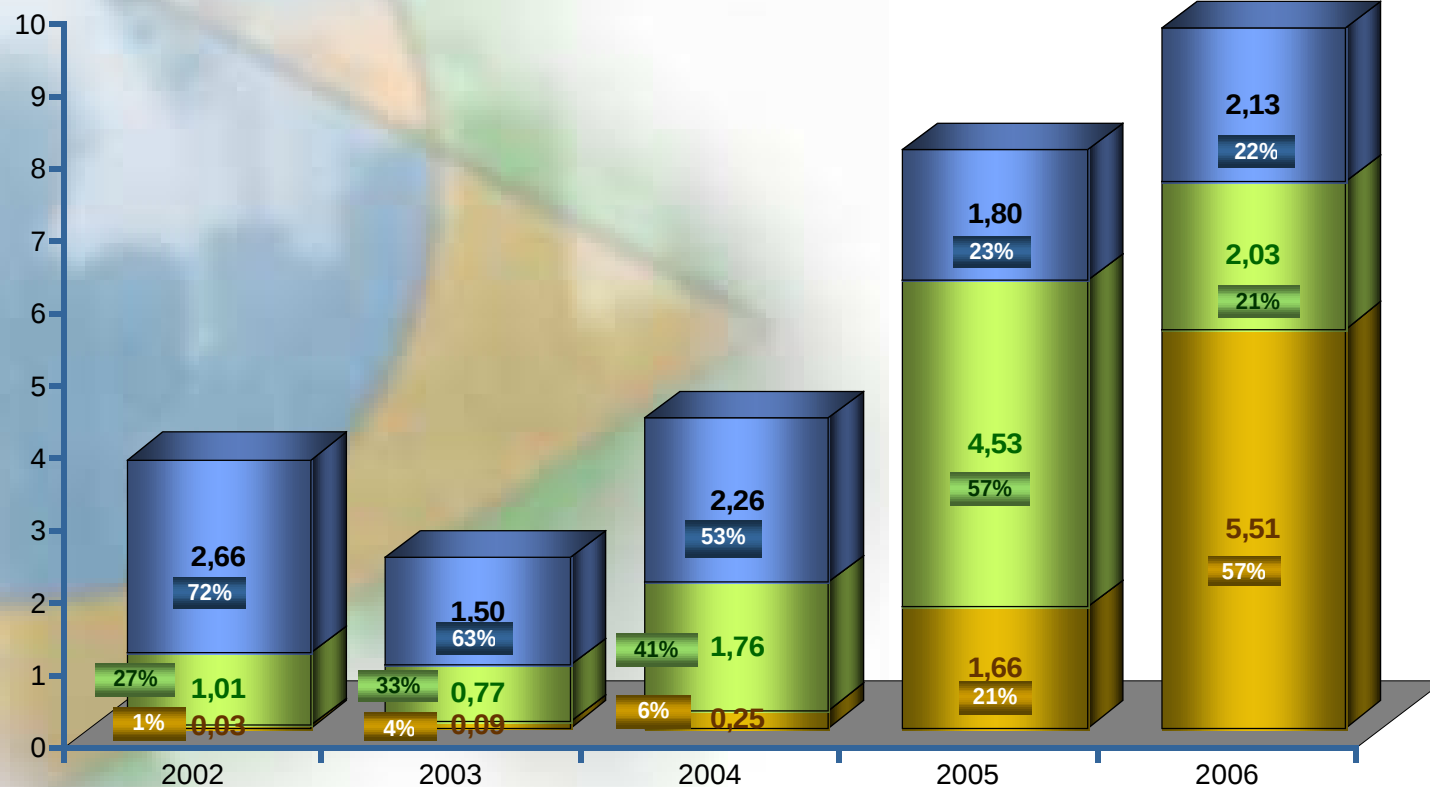
Successful Initiatives Federal Government

Government Procurement System



Common supplies purchase value – 2002 to 2006 (US\$)

Billion US\$

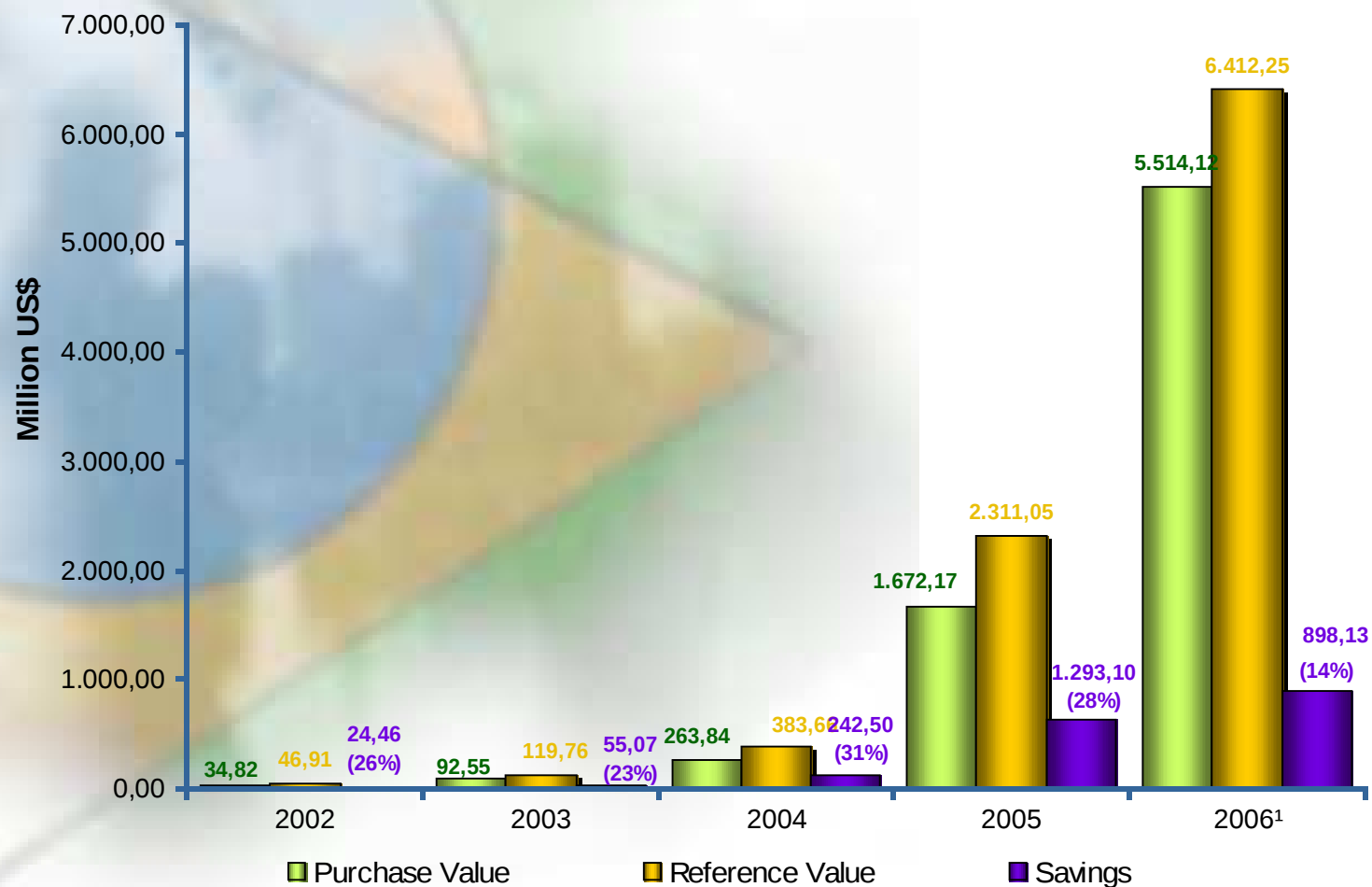


■ Eletronic Reverse Auction

■ Ordinary Reverse Auction

■ Other Types

Evolution of savings due to use of reverse auction, comparing to reference value – 2002 to 2006 (US\$)



Successful Initiatives Federal Justice

Electronic Vote

- ❑ Brazil uses electronic vote since 1995;
- ❑ **4.5% per year.** electorate growth;
- ❑ **136,8 million people** voted in 2006 election;
- ❑ Completely digital voting process since 2000;
- ❑ In each election a new version of voting machine is launched
- ❑ The next version of the vote machine will use Gnu/Linux OS.



Successful Initiatives Federal Justice

Electronic case files

- ☐ March, 2007: law that made possible the electronic process in Brazil
- ☐ June 2007: Supreme Court implemented the electronic process;
- ☐ October 2007: the first entirely digital process was concluded.

Successful Initiatives Federal Legislative

Legislative Projects

- ☐ **Interlegis** – Developed to gather information of all provincial and municipal legislative initiatives;
- ☐ **SIGA Brazil** – Free access to databases about public plans and federal budget.

Free Software Ecosystem

Free Software

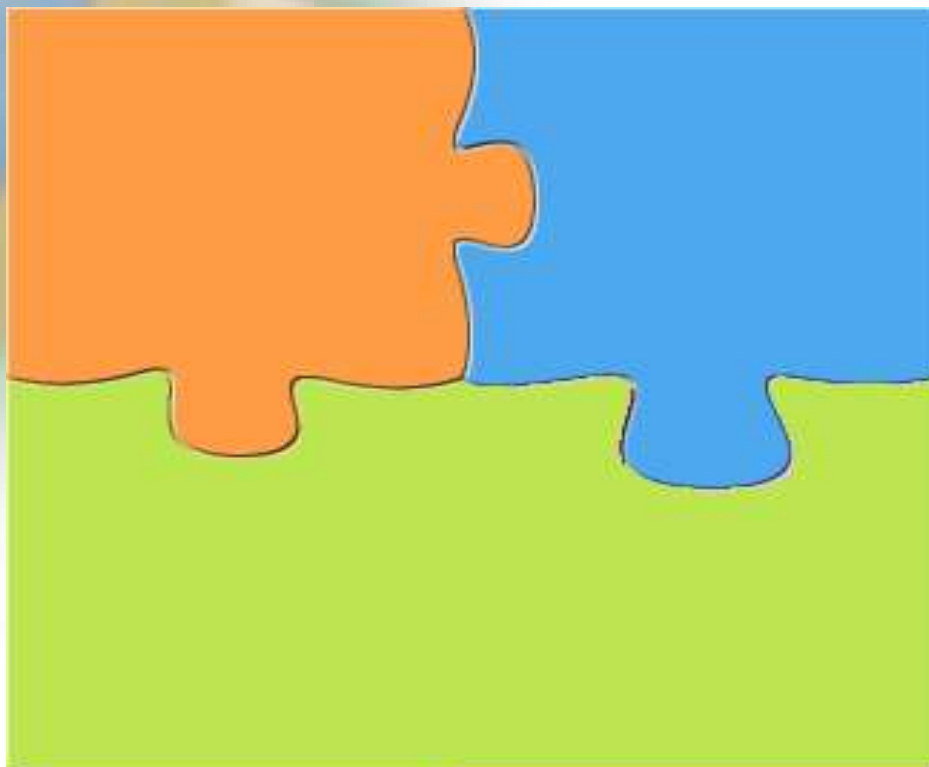


1998
2004

Free Software



Government
as user



Free Software



e – PING:

Electronic Government Interoperability Standards

2003
2008

- ✓ **Compliance with Internet**
- ✓ **Adoption of XML**
- ✓ **Adoption of browsers**
- ✓ **Development and adoption of Electronic Government Metadata Standards**
- ✓ **Development and maintenance of a Government Categories List**
- ✓ **Market support**

Governo Brasileiro
Comitê Executivo de Governo Eletrônico



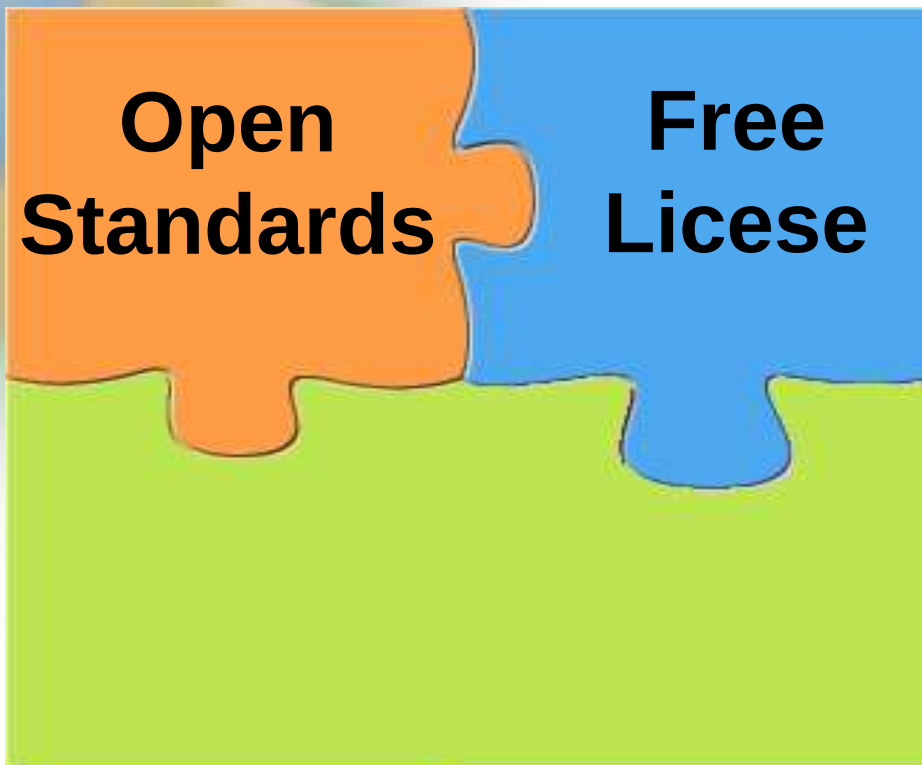
Documento de Referência
Versão 0
Março 2004

Legal aspect of GPL

2004
2005

Free Software

Study
of the legal aspect
of the gpl license
in accordance with
Brazilian Laws:
ITI and FGV



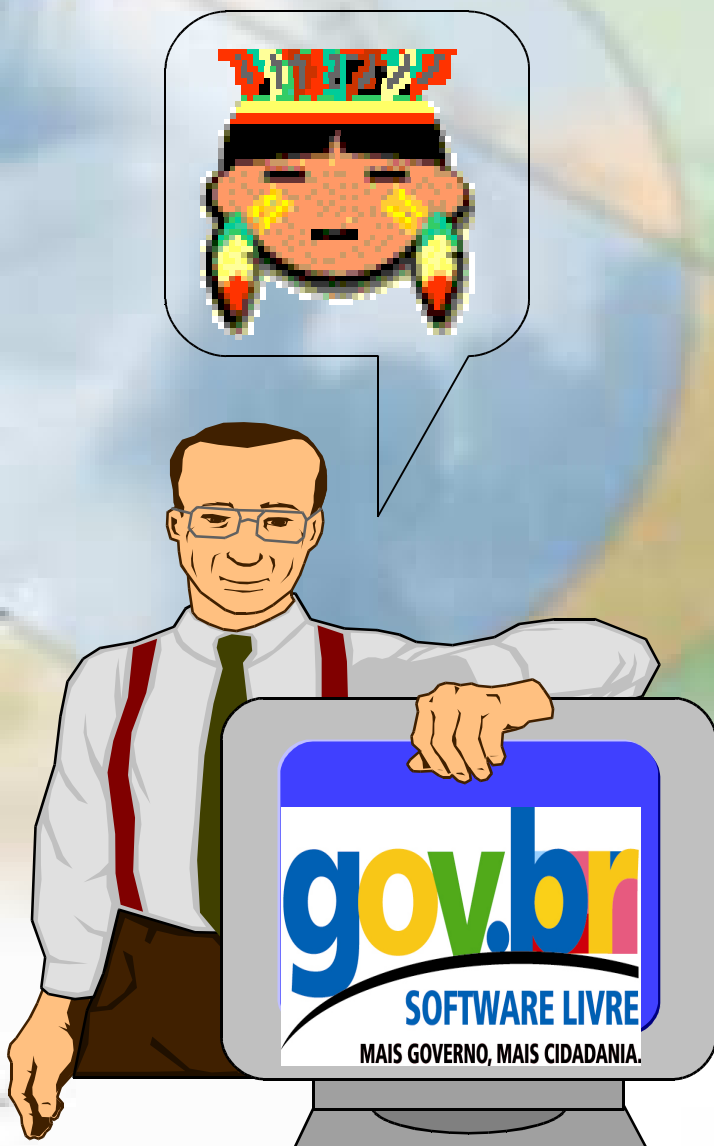
Community

2005
2008

Free Software



Free Software in and of the Brazilian Government Brazilian Public Software



Shared development communities

Government as developer, donor and user of software solutions.

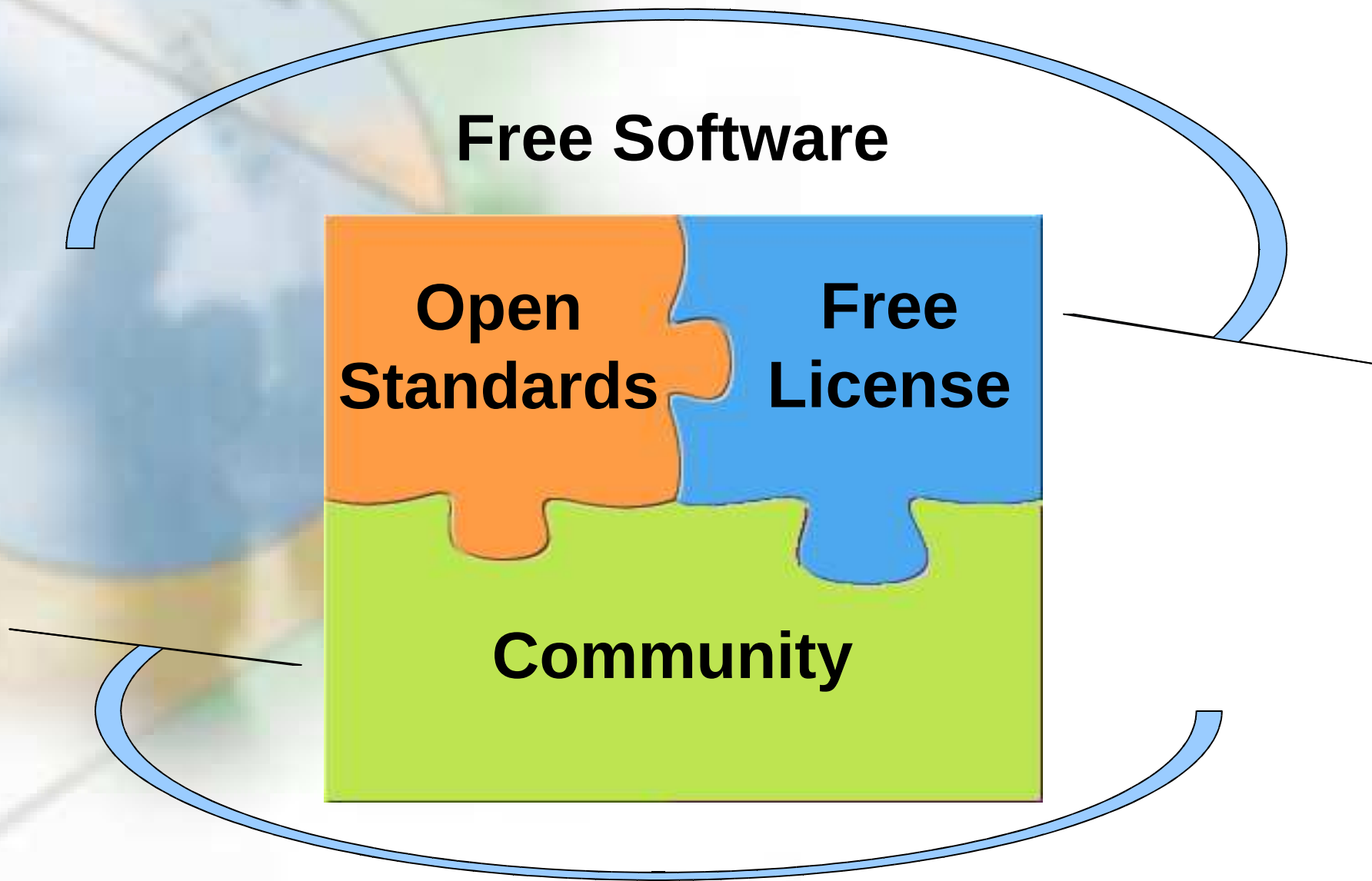
In the begin there was CACIC: Inventory of Hardware and Software. The First Brazilian Government Software Released as GPL.

Actualy, there is about 15 solutions available in the public software portal.

The Portal has 20 thousand subscribed users



The Free Software Ecosystem in the Brazilian Government



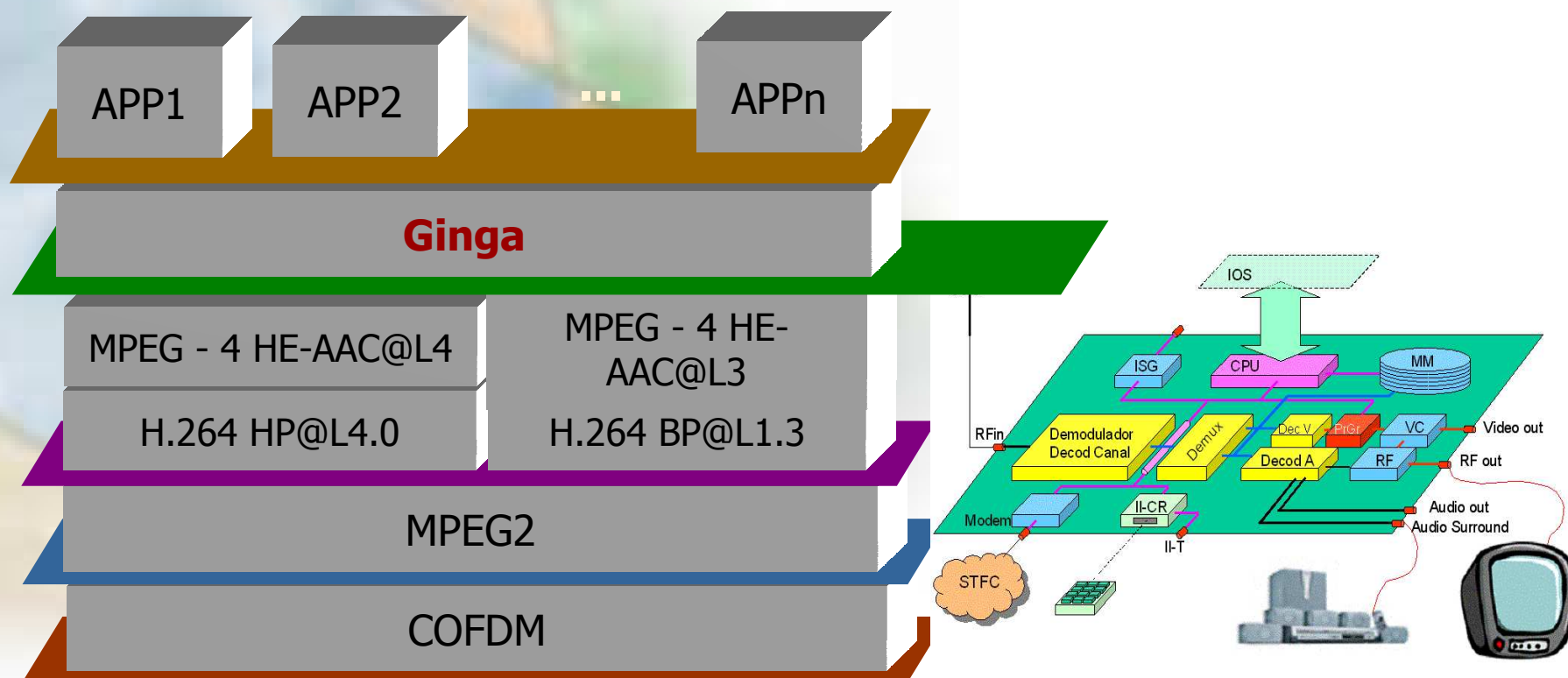
Examples of the use of java technologies in the Brazilian government

- The Federal Income Tax Program has one multiplatform version developed in Java.
 - After 2009 all the Income Tax declarations MUST use the version in java.
- Government web portals:
 - www.governoeletronico.gov.br
- Bank Systems:
 - The system used at the government bank Caixa Econômica Federal was developed in Java. There is more than 60 thousand bank terminals using this system.
- Government Systems:
 - The new procurament system is being developed in Java.
- Many organizations of the Brazilian Government use Java as primary development platform.
- Brazilian Digital Television
 - The middleware responsible for the interactive process of digital television was developed in Java.

Brazilian Digital Television



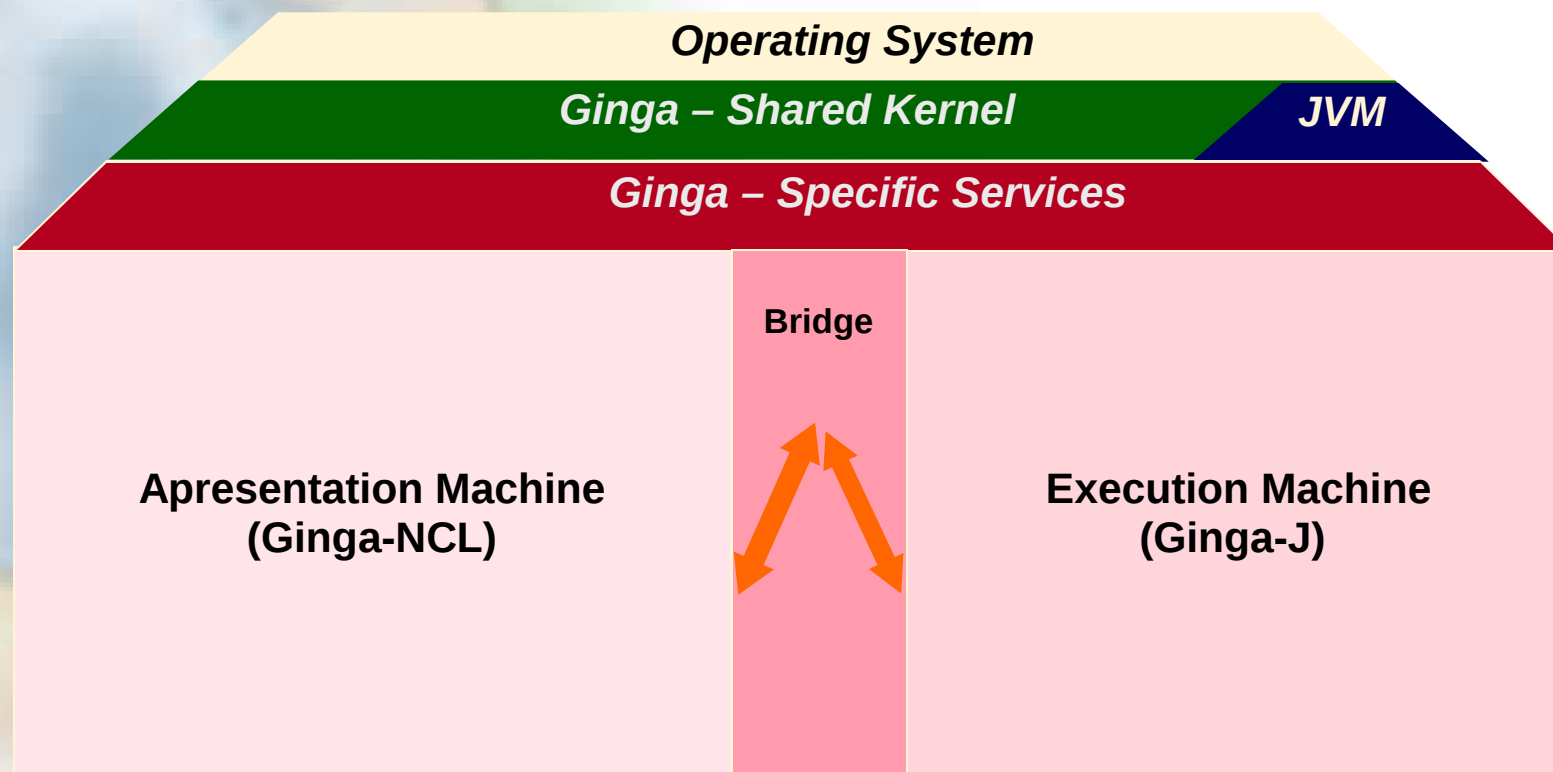
Ginga



Ginga

- Procedural
 - Low-level programming language
 - Harder to use
 - More flexibility
 - Ginga-J
- Declarative
 - High-level programming language
 - Easier to use
 - Less flexibility
 - Ginga-NCL

Ginga



Ginga

- Apresentação Machine Ginga-NCL (2 versions)
 - Developed in the programming language Java
 - Compatible with Windows and Linux
 - Directed for the development of interactive applications
 - Developed in the programming language C++
 - Compatible with Linux
 - High-performance version, to be embedded on the receptors
 - Demands high expertise on the installation process.
 - Recommended for middleware or receptors developers.
- Composer
 - Developed in Java
 - Available for Windows and Linux
 - Recommended for interactive applications developers

Ginga-NCL



Ginga-NCL



Ginga-NCL



Composer

Composer - Informações Extras

File Edit Insert Control Live View Window Help

project1

- newDocument
- connector
- connBa
- Quiz
- connector
- conned
- Informações
- connector
- conned

Structural View (75%)

Textual View

```

15 <id id="Informações E
16 <descriptorBase>.
17 <descriptor id="dVideo" region="rgVi
18 <descriptor id="dFundo" region="rgFu
19 </descriptorBase>.
20 </head>.
21 <body>.
22 <port id="pInicio" component="Video"/>.
23 <media id="Video" src="media/reciclagem.mpg"
24 <area id="timePapel" begin="0.5s" en
25 <area id="timeVidro" begin="7.6s" en
26 <area id="timePlastico" begin="15.2s
27 <area id="timeMetal" begin="22.8s" e
28 <property name="bounds"/>.
29 </media>.
30 <media id="Papel" src="media/extra_papel.png
31 <media id="Vidro" src="media/extra_vidro.png
32 <media id="Metal" src="media/extra_metal.png
33
34
35

```

Temporal View

00:00:00.000 00:00:04.443 00:00:08.887 00:00:13.333 00:00:17.777 00:00:22.222

timePapel timeVidro timePlastico timeMetal

Papel Vidro Plástico Metal

Layout View (50%)

regionBase

- rgTV
- rgVideo
- rgFundo

Top: Left: Width: Height:

Console Problems (0) Live History (0)

Element	Id	Description	Resource

Technological Innovations

- Development of the document "Guide of Technological Innovation in Cluster and Grid".
- Research, development and practical application of Cluster and Grid technologies:
 - High Availability, Load Balance, Database replication, distributed mass storage and virtualization.
- In 2006 was realized the First Seminary on Technology Innovation with the application of cluster and grid in the environment of Brazilian Federal Government. 42 technical talks.

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Ministry of Planning, Budget and Management

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