# OPEN STANDARDS & OPEN FORMATS


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# AGENDA ON OPEN STANDARDS & OPEN FORMATS

- About NIC
- About Standards
- Open Standards
- Open format
- Open Source Software
- Specific Cases of Open Standards
- Common Mechanism used for Governance Services, their problems & solutions
- Validators
- Applications deployed by NIC using Open Standards
- Conclusion

# ABOUT NATIONAL INFORMATICS CENTRE(NIC)

- GOI organisation under MICT
- Set up in 1976 to help Govt sector to provide informtaics/e-governance solutions in the country
- Hqrs at Delhi, centres(53) in the Central Govt depts, States(35) upto Districts levels(603)
- All are connected thro' NICNET for information exchange
- Around 3800 officials working across the country
- Working towards reaching the unreached for Govt services thro' egovernance.

# PROFILE OF SERVICES

- Digital Archiving and Management
- Digital Library
- E-Commerce
- E-Governance
- Geographical Information System
- IT Training for Government Employees
- Network Services (Internet, Intranet)
- Video Conferencing
- Web Services

# PROFILE OF SERVICES(CONT'D)

- General Informatics Services
- Medical Informatics
- Bibliographic Services
- Intellectual Property and Know-How Informatics Services
- Setting up of Data Centres
- Building Gigabit Backbone
- IT Consultancy Services
- Turnkey IT Solutions

# IMPORTANT MILESTONES

- NICNET - A first of its kind in developing countries, using state-of-the-art VSAT technology. Gateway for Internet/Intranet Access .
- Video-Conferencing operations first commenced in the early 90s and now connect 490 locations
- India Image/National Portal is a gateway to the Indian government information, covering 5000 govt websites.
- Established INOC/Data Centre at the centre and in the states
- NICNET covers more than 3000 nodes and 60000 nodes in LAN of all Govt depts

# USAGE OF OPEN SOURCE TOOLS

- Established Open Technology Centre(OTC) to facilitate the use of Open Technologies in egoveranance and strategic application & services, in NIC and also R&D to advise the suitable solutions

- Developments are done using the following OSS tools:
- Linux OS,
- Web Server : Apache HTTPD/TOMCAT

  Front-end : XHTML, CSS, PHP, AJAX, JavaScript, XML, RSS etc...

  CMS -Frame work : Drupal, Joomla

  Back-end : PostgreSQL

# USAGE OF OSS TOOLS(CONTD)-GIS

- UMN MapServer as GIS Server
- PHP with PHP MapScript
- OpenLayers – AJAX based Map Rendering
- PostgreSQL with PostGIS extension
- Geoserver to establish OGC Services – WMS, WFS, etc. (for SOA)
- Q-GIS, OpenJUMP-Interoperable Desktop GIS tools

# WHAT IS STANDARD ?

+Standards are the specifications for the *presentation of data* as office documents, text, numbers, maps, graphics, video and audio.

+The selection of format must consider

+ the *access channel* being used (Web, PDA, cell phone)

+ the *nature of the data* and structure (legal requirements that address preservation of document structure)

+ *ease of accessibility* for users

# WHAT ARE OPEN STANDARDS?

Open Standards are publically available specifications to achieve a specific task (like transmit, store ) and has various rights to use associated with it and may also have various properties of how it was designed(Open process)

ex: HTML, ODF, ANSI-SQL

- A license, not conditioned on payment of royalties, fees or other considerations must be available to all implementers of the recommendation, regardless of whether they are members or not.

- It is safer to opt for standards developed by Standards Developing Organizations (SDOs) like W3C.

  W3C: World Wide Web Consortium which favours Royalty Free licensing

# DATA INTER OPERABILITY USING OPEN STANDARDS

- Content interoperability is the ability of two or more ICT assets(software,data,hardware devices,communication devices) to work together.

# WHAT ARE OPEN FORMATS?

- Open Formats are specifications for data file formats that are
  - Based on an underlying open standard,
  - Affirmed and maintained by a standards body
  - Fully documented
  - Publicly available on Royalty Free basis

+Otherwise, Open standards which specify formats are referred as open formats.

# OPEN FILE FORMAT

- is a published specification for storing digital data mainatined  by standards organisation.
- This can be used and implemented by any one.
- Free file formats in the public domain.
- Any one can use free of cost for any desired purpose.

# CLASSIFICATION OF FORMATS AS PER ETRM

- OASIS ODF for office applications(OD)v.1.1
- ECMA-376 office open XML formats
- Hypertext document format v4.01
- Plain text format.

Enterprise tech ref model)

# SUN MICRO SYSTEMS DEFINES THE CRITERIA FOR OPEN FORMATS

- Format is based on open standard
- Developed thro' a publically visible community driven process.
- Affirmed & maintained by a vendor independent standards organisation
- Fully documented & publically available free
- Does not contain proprietory extensions
- Format is interoperable among different platforms
- Implemented by multiple vendors.

# EXAMPLES OF OPEN FORMATS

- Multimedia-JPEG2000,MNG,SVG,CMML etc.,
- Text-ASCII,PDF,RTF,Unicode,UTF-8 etc.,
- Compression-ZIP,tar, etc.
- Others- CSV,XML,HTML,XHTML,RSS,CSS,SFV etc.

# WHY OPEN STANDARD IS IMPORTANT ?

+Leads to multiple implementations from Open Source and various Proprietary Software Organizations. Hence multiple choices are available for the end-users to select the cost-effective-best-solution for the end-user-organization's needs.

+It creates a fair, competitive market for implementations of the standard; it does not lock the customer in to a particular vendor or group

# EFFECTS OF PROPRIETARY STANDARDS IN GOVERNANCE

+Proprietary standard leads to single implementation from the Proprietary Software Organization.

+Hence multiple choices are not available for the end-users to select the cost-effective-best-solution for the end-user-organization's needs.

+Only one solution with the huge cost dictated by the Proprietary Software Organization. i.e. it does not create a fair, competitive market for implementations of the standard.

+It  locks the customer in to a particular vendor.

# SPECIFIC CASES OF OPEN STANDARDS

- Web-Browsers
- Web-Standards

# EVOLUTION OF WEB-BROWSERS AND WEB-STANDARDS (1)

+ Information is created as Web-Pages in the Server (Web-Server and Web-Application-Server).

+Users access the Server through Web-Browser

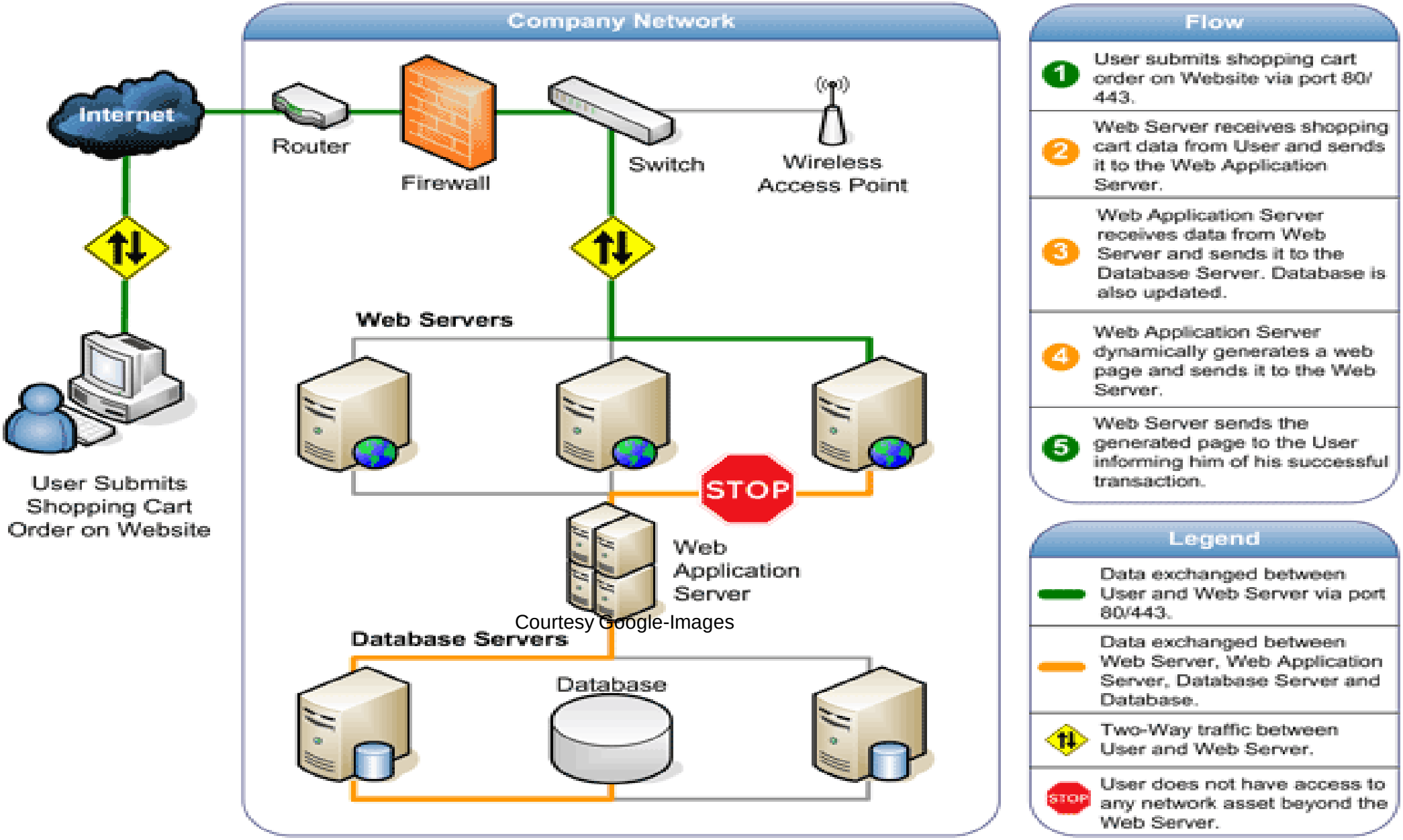
+Users send the data/query to the Server through Web-Browser as Web-Pages

+Users receive the response from the Server through Web-Browser as Web-Pages.

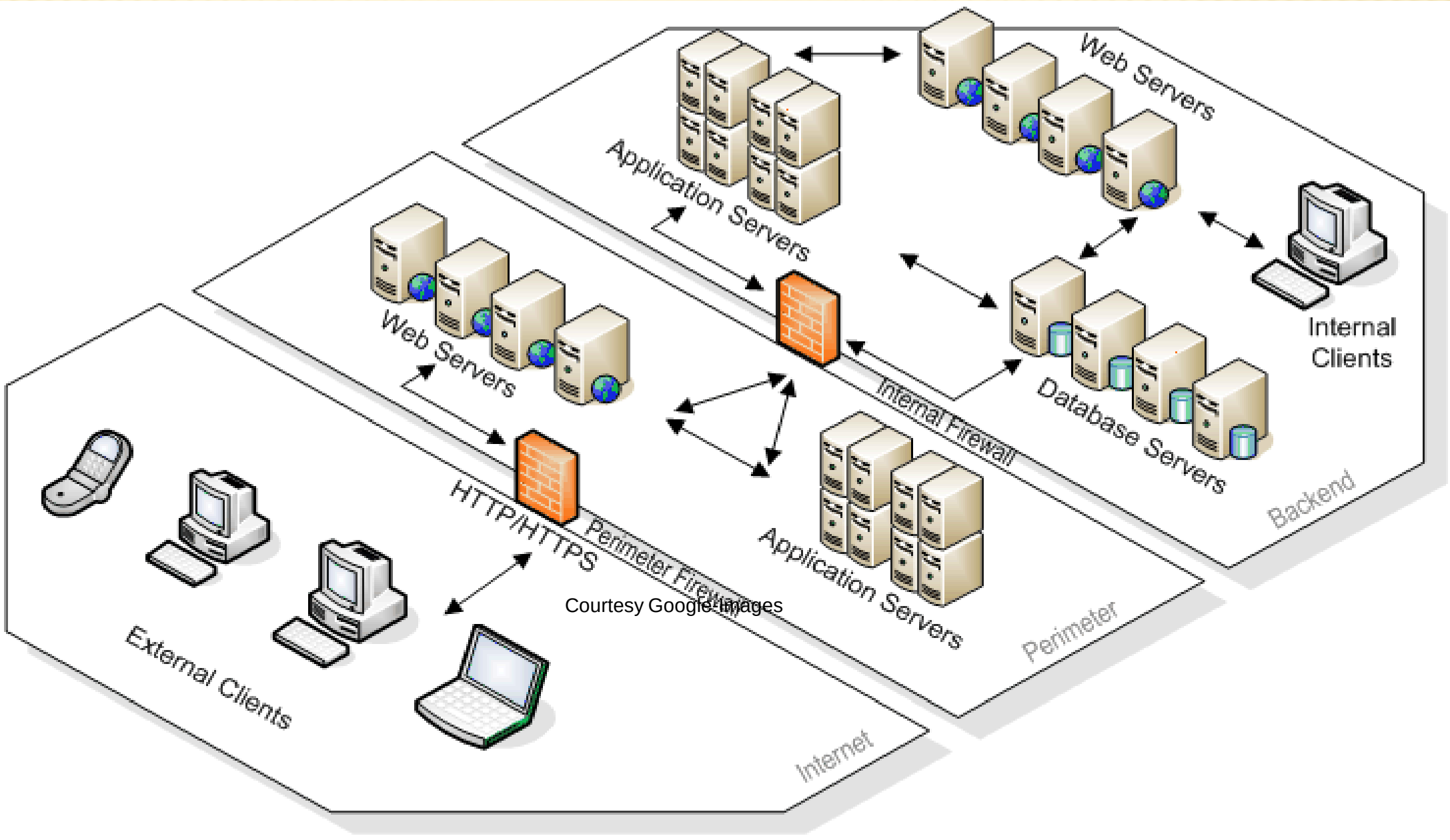
# EVOLUTION OF WEB-BROWSERS AND WEB-STANDARDS (2)

- Web browsers are created by many organizations.
- In order to provide access from any browser to any Server, standards for Web-Pages are created.
- Web-Page plays a crucial role in providing simpler e-Services to the Citizen

# BASIC CONCEPTS IN GOVERNANCE SERVICE VIA INTERNET



# COMMON APPROACH FOR GOVERNANCE SERVICE VIA INTERNET




Courtesy Google Images

# SOME OF THE COMMON PROBLEMS WITH WEB PAGES

*Web Page is not displayed (rendered) (fully or partially) on all commonly available browsers.*

*Web Page is not displayed (rendered) on different versions of the same browser.*

*Web Page is not displayed (rendered) uniformly on different platforms*

# SOME OF THE COMMON PROBLEMS WITH WEB PAGES – LOCAL LANGUAGE USE

*Obstacles still remain in the path to a multilingual Web*

*- poor representation of local language in Unicode Standard*

*- Non-availability of high-quality fonts as per Unicode*

# SOME OF THE COMMON PROBLEMS WITH WEB PAGES – SPECIFIC TECHNOLOGY

*Few Web Browsers are based on Specific Technologies and specific Web Standards; hence users (citizens) are forced to pay for the Patents, Royalties, and Monopolies.*

*Their Web Design Software use these non-standard specific technologies. Hence the Web Pages can't be displayed effectively in other Web Browsers.*

# SOLUTION FOR THE COMMON PROBLEMS WITH WEB PAGES

*Designing Web Pages to adhere to Open Standards*

*Migrating & Validating existing old Web Pages to adhere to Open Standards*

*Enforcing Conformance Test Procedures to validate Web Pages against Open Standards*

# MOST POPULAR OPEN STANDARDS FOR WEB DESIGNS

- *Some of the widely used Open Standards for Web Designs from World Wide Web Consortium (W3C) are;*

*HTML (Hyper Text Markup Language V-4.01) from World Wide Consortium (W3C)*

*CSS (Cascade Styling Sheet V-2.0) from World Wide Consortium (W3C)*

*ECMA-Script (Javascript V-262) from European Computer Manufacturer Association (ECMA)*

# OTHER OPEN STANDARDS FOR WEB DESIGNS

- *Some of the other Open Standards for Web Designs are;*

*International Organization for Standardization (ISO)*

*Internet Engineering Task Force (IETF)*

*Unicode*

# BENEFITS OF WEB OPEN STANDARDS FOR THE GOVERNMENT AND CITIZENS

*More Compatibility and less lock-in*
*Simpler Development & Ease of Maintenance*
*Lower Network Bandwidth Usage*
*Faster Web Page Downloading and Rendering*
*Device Independence*
*Better Accessibility*
*More Flexibility in selecting the vendors*
*Porting of application is easier from one platform to another*
*More choices from many vendors to offer solutions.*

# EGOVERNMENT PROJECTS SPECIFY STANDARDS

- Policies to follow open IT standards & specs by Norway,Denmark,France,Malaysia,India,Australia etc
- European unions' EIF recommends open standards for interoperability among the member countries.
- Protect from embrace,extend and extinguish tactics of vendors

# VALIDATION OF WEB PAGE

*Validation is the process of controlling that a document obeys the rules of the language used in the document.*

*Many errors that are hard to find are discovered during validation.*

*Unfortunately, many people don't validate their documents. Some people may not know about validation, others forget to validate, and there are those who intentionally avoid validating.*

# WEB SITES FOR VALIDATION SERVICES - HTML

- *To check the web page coding:*

*Markup Validation Service checks Web documents in formats like HTML and XHTML for conformance to W3C standards.*

*http://validator.w3.org/*

*http://www.htmlhelp.com/tools/validator/*

*http://www.doctor-html.com/RxHTML/cgi-bin/single.cgi*

# WEB SITES FOR VALIDATION SERVICES - CSS-2.0

*W3C CSS Validation Service checks Cascading Style Sheets (CSS-2.0) in (X)HTML documents or standalone for conformance to W3C standatrds.*

*http://jigsaw.w3.org/css-validator/*

# WEB SITES FOR VALIDATION SERVICES - LINKS

*Link Checker Checks anchors (hyper-links) in a HTML/XHTML document. Useful to find broken links, etc.*

*http://validator.w3.org/checklink*

# WEB SITES FOR VALIDATION SERVICES - JS

*Javascript (ECMAScript 262) is used for form validation at the browser side (but server side also needs the validation of inputs)*

*Java Script Standard is at*

- *http://www.ecma-international.org/publications/standards/Ecma-262.htm*

*Javascript is supported by*

*Mozilla browser,*

*Firefox browser ,*

*Opera browser,*

*Internet-Explorer browser*

# WEB SITES FOR VALIDATION SERVICES - HTML LOGO

*To show the readers that you have taken the care to create an interoperable Web page*

*You may display this icon on any page that validates.*

# STANDARD WEB PAGE DESIGN USING COMMERCIAL SOFTWARE

## (REPLACEMENTS FOR NON-STANDARD BROWSERS LIKE MS-FRONT PAGE, MS PUBLISHER AND OTHERS)

- WYSIWYG editor Adobe-Macromedia-Dreamweaver
- 
- WYSIWYG editor Adobe GoLive

# STANDARD WEB PAGE DESIGN USING OPEN SOURCE SOFTWARE

(REPLACEMENTS FOR NON-STANDARD BROWSERS LIKE MS-FRONT PAGE, MS PUBLISHER AND OTHERS)

Nvu (pronounced N-view, for a "new view") makes managing a web site.

Amaya is a complete online web browsing and authoring environment and comes equipped with a WYSIWYG style of interface, similar to that of the most popular commercial browsers.

+OpenOffice can be used to create web pages

+Mozilla / Seamonkey Composer keeps getting better with dynamic image and table resizing, quick insert and delete of table cells, improved CSS support, and support for positioned layers. For all your simple documents and website projects, Composer is all you need."

# ENHANCED WEB STANDARDS FOR WEB-ACCESSIBILITY

*Web accessibility refers to the practice of making websites usable by people of all abilities and disabilities.*

*When sites are correctly designed, developed and edited, all users can have equal access to information and functionality.*

*When a site is coded with semantically meaningful HTML, with textual equivalents provided for images and with links named meaningfully, this helps blind users using text-to-speech software and/or text-to-Braille hardware.*

# ENHANCED WEB STANDARDS FOR WEB-ACCESSIBILITY

- *When text and images are large and/or enlargeable, it is easier for users with poor sight to read and understand the content.*

*When links are underlined (or otherwise differentiated) as well as coloured, this ensures that colour blind users will be able to notice them.*

# ENHANCED WEB STANDARDS FOR WEB-ACCESSIBILITY

In 1999 the Web Accessibility Initiative, a project by the World Wide Web Consortium (W3C), published the Web Content Accessibility Guidelines WCAG 1.0.

A growing number of countries around the world have introduced legislation.

The legislation addresses the need for providing websites accessible to people with disabilities; it suggests to avoid discrimination against disabled persons.

# DEVICE - INDEPENDENT WEB STANDARDS

*The number of different kinds of devices that can access the Web has grown immensely.*

*mobile phones,*
*smart phones,*
*personal digital assistants,*
*interactive television systems,*
*voice response systems,*
*kiosks and*
*even certain domestic appliances can all access the Web.*

# DEVICE - INDEPENDENT WEB STANDARDS

*It is necessary to make Web access from any kind of device as simple, easy and convenient as Web access from a desktop.*

*Open Standards which work across different devices are to be used.*

# BENEFITS OF OPEN STANDARDS

- File formats should follow std specs to store data and to exchange.
- Office applications should follow open document std from OASIS and ISO/IEC26300.
- Internet use open stds as per IETF,W3C and OASIS to provide services to PC,PDA and mobile devices to set-top-box & TV sets.
- Open formats guarantee long term access to data without legal or technical barriers.
- Create low friction which creates innovation which in turn makes people use it

# E-GOVERNANCE STANDARDS DIVISION AT NIC.

- 1.To steer and manage the standardisation activities under National e-governance program.(NeGP)
- 2. To provide secretariat to the working groups, apex body.
- 3. Coordinate with the working groups, apex body and other organisations.
- 4. To originate white papers on all the desired standards that would serve as discussion papers for development of standards.
- 5. To work out timelines and resources required.
- 6. To form working groups as and when required.
- 7. To prepare terms if reference (TOR's) for the working groups.
- 8. To take services of experts and /or other specialized organisations.
- 9. To publish the draft standards on the website for obtaining feedback from external community and industry.
- 10. To submit draft standards to apex body for approval.
- 11. To coordinate with STQC for adopting of approved standards.

# DIFFERENT TYPES OF STDS COMMITTEES

- Network & Information Security Standards
- Meta Data and Data Standards for Application Domains
- Localisation & Language Technology Standards
- Quality & Documentation Standards
- Technical Standards & E-Governance Architecture
- Legal Enablement of ICT Systems

# OPEN SOURCE APPLICATIONS USING STDS

- Services on Land records
- Services on Registeration
- Services on transport
- Govt eProcurement system of NIC

# CONCLUSION

+Selection & use of Open Standard is very important for offering Services. W3C offers many Open Standards for Web Page.

+Device-Independent Open Standards are also to be used.

+All web pages and web applications are to be designed as per basic W3C Standard to give effective Services to those in need.

+Use of Web Accessibility Standards are to be introduced gradually in the next phase.

+*Following open standards and open formats, an open govt will get established to make available the information freely to the citizens*

# THANK YOU !

- Sharing of Some Thoughts from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