

CLOUDINAR HALLS

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Abstract—In a seminar room, a trainer lectures for a large group of listeners using only a projector would not be effective. This problem can be solved by using a projector that can be paired with a tablet or smart phones of the learners, to access projector's data, using wireless technique. The projector can be integrated with a thin-client to connect with the cloud, where lecture contents are stored, can avoid extra portable storage. The cloud projector can be coupled with a wireless keyboard and mouse could replace the usage of traditional computer based presentations giving presenters the freedom to interact more with the learners.

Keywords— Projector, Cloud computing, Multicasting, Ad-hoc network

I. CLOUD COMPUTING

A. What is cloud computing?

Cloud computing is a general term for the delivery of hosted services over the Internet. Cloud computing enables companies to consume compute as a utility – similar to electricity or a telephone service – rather than building and maintaining computing infrastructures. Cloud computing is typically defined as a type of computing that relies on sharing computing resources rather than having local servers or personal devices to handle applications. Remote machines owned by another company would run everything from e-mail to word processing to complex data analysis programs. It's called cloud computing, and it could change the entire computer industry.

B. History

Multiple users were capable of accessing a central computer through dumb terminals, whose only function was to provide access to the mainframe. Because of the costs to buy and maintain mainframe computers, it was not practical for an organization to buy and maintain one for every employee. Nor did the typical user need the large (at the time) storage capacity and processing power that a mainframe provided. Providing shared access to a single resource was the solution that made economic sense for this sophisticated piece of technology. Grid computing provided a virtual pool of computation resources but it's different than cloud computing. Grid computing specifically refers to leveraging several computers in parallel to solve a particular, individual problem, or to run a specific application

C. Advantages

When companies start relying on cloud-based services, they no longer need complex disaster recovery plans. Cloud computing services are typically pay as you go, so there's no need for capital expenditure at all. More flexible. Cloud computing is probably the most cost efficient method to use, maintain and upgrade. Traditional desktop software costs companies a lot in terms of finance. In the cloud, software integration is usually something that occurs automatically. This means that you do not need to take additional efforts to customize and integrate your applications as per your preferences. Users access cloud applications on standard web browsers anytime, anywhere. Using web style user interfaces, like that of eBay or Yahoo, allows for more widespread adoption across the company without the need for detailed training. Businesses using cloud computing only use the server space they need, which decreases their carbon footprint.

D. Services

Cloud-based applications—or software as a service (SaaS)—run on distant computers “in the cloud” that are owned and operated by others and that connect to users' computers via the Internet and, usually, a web browser. Infrastructure as a Service (IaaS) – compute, storage, networking, and other elements (security, tools) are provided by the IaaS provider via public Internet, VPN, or dedicated network connection. Users own and manage operating systems, applications, and information running on the infrastructure and pay by usage. Platform as a Service (PaaS) brings the benefits that SaaS brought for applications, but over to the software development world. PaaS can be defined as a computing platform that allows the creation of web applications quickly and easily and without the complexity of buying and maintaining the software and infrastructure underneath it.

II. PROJECTORS AND ITS LIMITATIONS

A projector is an output device that can take images generated by a computer and reproduce them on a large, flat (usually lightly coloured) surface. Projectors are used in meetings to help ensure that all participants can view the information being presented. Schools use them to replace traditional film and overhead projectors as well as to develop

new applications. Instructors supplement their lecture material with PowerPoint presentations shown with an LCD projector and computer. The teacher projects a PowerPoint slide on a whiteboard and can annotate the image on the board with a marker as she discusses important principles; she can add notes and equations and point out interesting features. But these projectors are wired ones which has certain disadvantages. These projectors need to be connected to a PC or a laptop through a wired medium which is difficult. These classical projectors need a source of input which is a PC or a laptop which cannot be carried around all the time as they are extra portable storage devices.

III. CLOUDINAR HALLS

A. Integration of technologies

The Cloudinar halls are basically smart seminar halls which uses cloud technology. It solves the disadvantages of the classical projectors. This project is mainly focuses on solving two problems. One, when the trainer has to address a large crowd the learners at the end away from the projector will not be able to view the data distinctly. So instead of using multiple projectors we can simply broadcast the projected data to the learners, so that they can get a clear access to the projector's data. Now the data that is being projected at far end can be viewed with any device such as a tablet, laptop or a smart phone that the learner owns. The second issue that this project solves is, whenever a laptop is connected with a projector, so many issues might occur. Connecting a laptop with the projector through a wired medium itself does not seem very easy. Sometimes, the laptop might need any software to project its display. To avoid all this, the cloud projectors can directly get the data from cloud and the Trainer can walk in and simply present his lecture by just turning on the projector and accessing his files from the cloud. A big deal of money and time can be saved because of this quick projection. On the whole, the project "Cloudinar Halls" would serve as a solution when there are presentations made for a huge crowd, because people sitting far from the projector will not be able to view what has been projected. So instead of having multiple Projectors the projected data is viewed in the learner's Laptop or the tablet which is connected with the projector, which retrieves the data from the cloud and the learner's device can access this data through a wireless network from the projector

B. Architecture

- se either SI (MKS) or CGS as primary units. (SI units are encouraged.) English units may be used as secondary units (in parentheses). An exception would be the use of English units as identifiers in trade, such as "3.5-inch disk drive".
- Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.

- Do not mix complete spellings and abbreviations of units: "Wb/m²" or "webers per square meter", not "webers/m²". Spell out units when they appear in text: "... a few henries", not "... a few H".
- Use a zero before decimal points: "0.25", not ".25". Use "cm³", not "cc". (*bullet list*)

C. Description of modules

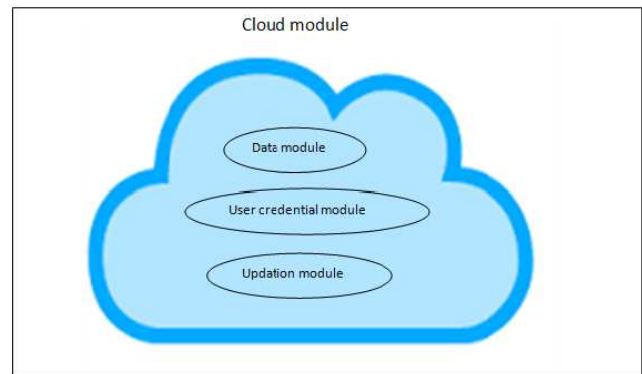


Fig (a)

Under the cloud module fig (a) there is a data module that maintains the data of all the lectures of the trainer. It consists of the lecture contents that are to be projected from the trainer's projection device that can be a PC, Tablet or a smart phone. This module may be updated at any time. Any changes done by the trainer is send to the cloud module via the projector module. The cloud module also consists of a User credential module which has a registry of user credentials of the trainers and the learners. This module gives the authorization of who can access the data. The cloud projector module includes the projector which eliminates the need of extra portable storage. This module consists of access module and a cloud intermediate. The access module is for authentication purpose. Since the data is broadcasted to the learners from the cloud projector, it requires authentication, thus the access module serves this purpose. The cloud intermediate Fig (b) of the cloud projector module enables the projector to retrieve data from the cloud module.

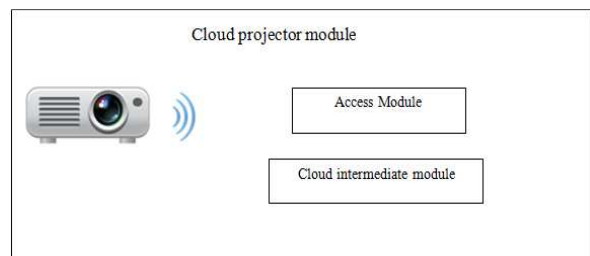


Fig (b)

D. Working

In the Cloudinar hall the trainer's laptop, tablet or smart phones are connected to the projector. The projector in turn is connected to the cloud module. The cloud projector module allows the trainer to access the cloud module in order to retrieve the data to be presented. The learner can also connect to the cloud using any wireless connections. An Ad-hoc network is been created to which the learners are connected. Once the listeners are connected to the network provided the data that is being presented on the projector screen is also multicasted to the learners own laptops or smartphones.

IV. ADVANTAGES AND USAGE

This Cloud application is basically about two things. One, it uses a Projector with a thin client function that is integrated with the cloud. In cloud the data to be projected is stored. If the trainer does not use a laptop or any other form of computer then the data is directly fetched from the cloud and is projected and if the trainer uses some form of computer then the data modifications that is done in the trainer's computer would be projected and will be updated in the cloud for all the learners to access the data with a network that is connected with the projector. Two, the learners who are sitting at the far end away from the Projector will not be able to view the data that is projected. Hence to solve this, these learners can access the data from the projected though a wireless network in the learner's computer from the projector or they can access the data directly from the Cloud itself.

V. CONCLUSION

The seminars that are conducted in a Cloudinar hall may be more effective than the traditional seminars conducted using a single projector. The learners using laptops, tablets and smart phones can access the data from the projector despite the operating system that their devices use, which enables the learners who are sitting at the far back from the projector to access the projected data more easily. The cloud projector is connected with the cloud, which reduces the use of extra portable storage and also the overall cost of the equipments is reduced. It is also intended to include many user interactive options over the trainer and the listener devices to make the session more collaborative rather than the single point of lecture.

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