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CloudDrops: Stamp--sized Prevalent Exhibit for State Appreciation of Web--based Facts

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Abstract—**Outsourcing information to an outsider authoritative control, as is done in distributed computing, offers ascend to security concerns. The data compromise may occur due to attacks by malicious users and nodes within the cloud. Therefore, high security systems are required to protect data within the cloud. Be that as it may, the utilized security technique should likewise consider the advancement of the information recovery time. In this paper, we propose Division and Replication of Data in the Cloud for Optimal Performance and Security (DROPS) that collectively approaches the security and performance issues.**

In cloud computing, the data is stored on third party space gives rise to security concerns. The user and node within cloud may compromise the data . We also compare the performance of the DROPS methodology with ten other state-of-art schemes.

Only a single fragment of a particular data file can be stored by each of the nodes that ensure that no meaningful information is revealed to the attacker even The higher level of security with slight performance overhead was observed.

Keywords—***Cloud Computing, Centrality, Cloud Security, Fragmentation, Replication, Performance.***

I. INTRODUCTION

CloudDrops technology is about securing data over the cloud because when the users outsource their data to third party administrative control, it gives rise to security concerns. The data compromise may occur due to attacks by nodes within the cloud and user. The largest amount of the systems security is equivalent to the security level of the weakest element in any given framework with numerous units. People intensively use physical space for accessing and remembering paper-bound information. Transforming large parts of our formerly physical information environment into the digital realm has its obvious advantages that cannot be underestimated; but this also comes at a cost: we are giving up the notion of having an information item at a meaningful place and of using our entire surroundings for managing information. The physical assets to be shared among numerous clients get permitted by Pooling and flexibility of a cloud. In this paper the issue of security and execution as a safe information replication issue, we by and large approach. Recent advances in pervasive display technologies enable high-resolution yet tiny, stamp-sized touch-displays that include processing power and networking capabilities.

The majority of the taking part substances must be secure for a cloud to be secure. The largest amount of the systems security is equivalent to the security level of the weakest element in any given framework with numerous units. In this way, in a cloud to establish safety, the security of the benefits does not

exclusively rely on upon an individual's efforts. The endusercan flexibly arrange the set of stamp-sized displays, locate them at meaningful places and thereby easily instrument, orchestrate and reconfigure his or her personal information environment, to stay aware of digital information.

Figure 1. CloudDrops help users stay aware of dynamic Web-based information and support flexible spatial layoutsin architectural space

However, making use of such tiny displays for awareness applications poses various challenges. This includes the questions of how content should be mapped to displays, how it should be visualized on the tiny displays, and how the user can interact with content. It is also unclear how several displays can be used in concert and how displays can be combined with physical artifacts to support situated awareness.

We address these challenges and contribute CloudDrops, an interactive awareness platform that consists of many stampsized displays, which provide awareness of websites, contacts and places. The end-user can scatter the displays throughout the architectural space, to ensure each piece of information is available at a meaningful physical location (see Fig. 1).

We introduce Division and Replication of Data in the Cloud for Optimal Performance and Security (DROPS). It parts client records into pieces and repeats them at vital Distributed computing. In any case, the security concern get expanded by the advantages of minimal effort, insignificant administration (from a client's point of view), and more prominent adaptability accompany. Security is a standout amongst the most pivotal perspectives among those forbidding the fare chin reception of distributed computing. Based on a 6-dimensional holistic view on the platform, we provide the following contributions:

- We propose different form factors for stamp-sized pervasive displays, provide a device concept and a first implementation.
- We provide visualizations and interactions for Web pages and Web applications that are tailored to the tiny display size. In addition, we show how CloudDrops can support synchronous and asynchronous communication with remote persons.
- We show concepts for associating digital content.
- We demonstrate the rich possibilities the platform is enabling by showing a set of activities and applications. Results from a field study provide first insights into how users create personal awareness environments with CloudDrops.

RELATED WORK

Small and Everywhere Displays

In failure situations, Replication can be useful for maintaining availability, reliability and performance. But due to extreme use of bandwidth the extra replication can also result in high storage cost or drops in systems overall performance. So, here controlled replication is used. The time and work on some attacks will get saved in the future work. S. U. Khan, and I. Ahmad Cloud computing, while quickly evolving, can offer IT departments a powerful choice for delivering application program. Cloud computing promises scalable, on-need resources; flexible, self serve deployment; lower TCO; faster time to market; and a mass of service option. It can legion your entire substructure, be a part of your substructure, or simply serve a single application. No matter how far into the swarm you are, or if it is a public, private, or cross cloud , F5 solution can help make your cloud infrastructure or deployment more secure, reliable, and resilient. IT administrators can isolate constellation.

CLOUD DROPS

Device concept

We realized the concept of a Cloud Drop in two working prototype versions (Fig. 3). Each emphasizes different aspects of the concept of a Cloud Drop. In order to visualize and interact with information from the cloud, a Cloud Drop contains a small touch-sensitive display. The display is big enough to show a small piece of information, which can be consumed at a glance. Users can personalize the appearance of a CloudDrops with custom casings. As examples, we chose a drop shape and a more neutral square shape. Similarly to how magnets are used on whiteboards or fridges, a Cloud Drop can be attached to various objects, sticking to them with its magnet and adding additional information to those objects. Our prototype B has a camera on the backside (see Fig. 3 reverse side), which is used for easy association between the Cloud Drop and the underlying object by taking a picture of the object. While a Cloud Drop can be used on its own, as a tiny drop, CloudDrops are often used in groups. A “puddle” of CloudDrops can act as a bigger, coherent entity, forinstance to provide more detailed information or to provide

Figure 3: CloudDrop prototypes.

increased visibility for notifications. Our prototype B is capable of recognizing nearby CloudDrops.

Implementation

In our prototypical implementation, each CloudDrop has a full-color touch-sensitive screen with a diagonal of 1.5 inches and a resolution of 160x160px. It features a 600Mhz processor, a built-in accelerometer and WIFI connectivity, and an RFID tag attached. Prototype A weighs 32 grams and measures 2.1x2.9x0.5 inches. Prototype B weighs 73 grams and measures 2.1x2.1x1.25 inches. It features an infrared sensor on each side with a maximum range of 4cm for neighbor detection. Once a neighbor is detected, they exchange their ID and the side along which they are facing each other via a custom infrared protocol. All CloudDrops are connected to a central server. Other computing devices recognize a nearby CloudDrop using an RFID reader. The rechargeable battery lasts for approx. 8 hours during typical usage.

Our implementation is compatible with standard Web protocols and major application platforms. CloudDrops can display and interact back with content from Web pages, Gmail, GoogleDocs and Skype. For associations with the Google Chrome browser and Skype, the nearby computing device runs a client application that communicates with the CloudDrops web server.

CONTENT AND INTERACTIONS

CloudDrops are designed to be visible at a glance. Therefore, all screen real estate is devoted to content. The CloudDrops platform allows the user to display and interact with content from three main classes: related to documents, related to people, and related to places.

Web Pages and Documents

CloudDrop offers three visualizations for Web pages, documents and Web applications:

Entire Web-page: A CloudDrop can be associated to monitor global changes of a Web page. The display notifies the user once any update is happening anywhere on the page.

Dynamic Snippet: Often it is only a small part of a page that the user wants to stay aware of. Consider e.g. an ongoing auction at eBay. The user might be interested in just following updates of the price of the article. To do so, CloudDrops can be associated to a small snippet of a Web page and update in real-time if this information changes. Figure 4a shows an example, in which the CloudDrop displays the current price of an article on eBay.

Web Application: Besides standard Web pages, there is an increasing number of powerful Web applications, such as online mail clients or collaborative text editing tools. Many of them have a programmatic interface that offers access to more detailed awareness information. CloudDrops integrates with several standard Web applications to provide rich awareness information. This is illustrated in Figure 4b, c and d: for a Google Doc, a CloudDrop shows the number of revisions since the document was last accessed on a Web browser. For a Gmail inbox, it shows the number of unread emails and, if available, the photo of the person who sent the last one. In addition to information updates, CloudDrops act as a backchannel and provide a lightweight way to interact with the associated content. For instance, the user can star an email directly on the CloudDrop. For the full set of interaction possibilities, the Web page or document can be opened on a bigger screen. This is done by holding the CloudDrop close to another computing device while touching on the CloudDrop's display.

People

CloudDrops support awareness of people and interpersonal communication. While many cloud-based communication services could be integrated with CloudDrops, we chose Skype because it supports synchronous and asynchronous communication as well as status messages. After associating a CloudDrop with a contact, the Cloud Drop shows the picture of the person, her status message, and her online status (Fig. 4e).

Asynchronous communication: The user can stay aware of the person by means of her status messages and online status. The user can send an emoticon directly from the CloudDrop. Since incoming text messages are accessible on the CloudDrop, emoticons also act as a quick answer.

Synchronous communication: For synchronous communication, the user can make a phone call by holding the CloudDrop close to a PC, tablet or smart phone and touching the "call" button. The call is then initiated on the other computing device. Since the entire communication is handled via Skype, the remote partner does not need to have CloudDrops in order to participate in the communication. Finally, the platform supports lightweight communication in-between two CloudDrops. Suppose that a CloudDrop is at the user's location, while another

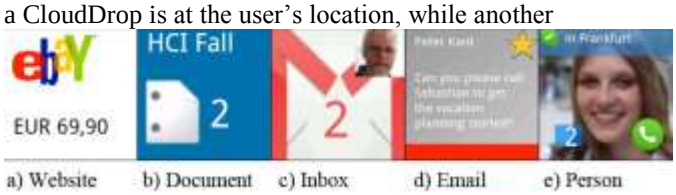

Figure 4. Content types and their visualizations, as they are supported by a CloudDrop.

Figure 5. Varying the degree of awareness information by adding or removing CloudDrops to a puddle.

CloudDrop is at the remote user's place and both are associated with the other user. Like knocking on a physical door or a porthole, the user can touch the display; then the remote Cloud Drop lights up. This enables rich and direct communication patterns, e.g., fast knocking in urgent cases or knocking in a specific rhythm to share a mood. If the user

wants to get the remote partner's attention more explicitly, she presses on the display and shakes the CloudDrop. In this case, all surrounding CloudDrops at the remote location glow periodically.

Physical place

CloudDrops that are associated with a physical place can show messages that are remotely sent to the location. To do so, the user sends an email with the location description as subject and the message in the email body. If people leave more messages at this location than there are CloudDrops available, they periodically change the messages displayed.

3. Proposed Work

The DROPS methodology technique has been described by this paper, a user has to download the file, update the contents, and upload it again. It is strategic to develop an automatic update mechanism that can identify and update the required fragments only. Moreover, the implications of TCP in cast over the DROPS methodology need to be studied that is relevant to distributed data storage and access. We develop a scheme for outsourced data that takes into account both the security and performance. The future work will save the time and resources utilized in downloading, updating, and uploading the file again. The proposed scheme divides the file in fragments and replicates the data file over cloud nodes. The proposed DROPS scheme ensures that no meaningful information is revealed to the attacker even in the case of a successful attack. The data outsourced to a public cloud must be secured. Unauthorized data access by other users and processes must be prevented. The main aim of our project is secure the files store on cloud. The division of a file into fragments is performed based on a given user criteria. We do not rely on traditional cryptographic techniques for data security. To perform the required operations (placement and retrieval) on the data, the non-cryptographic nature of the proposed scheme makes it faster. We ensure a controlled replication of the file fragments, Where each of the fragments is replicated only once for the purpose of improved security.

4. Architectural View

The architecture diagram of the system shown below helps us to understand the system.

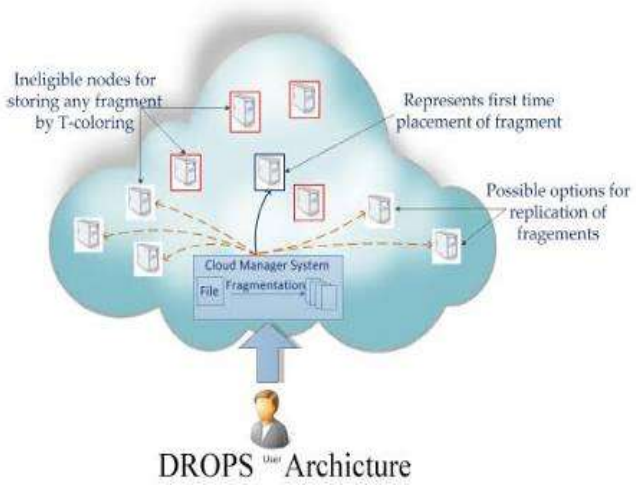

Figure 1: System Architecture

In this paper, as a secure data replication problem we collectively approach the issue of security and performance. We present DROPS that fragments user files into pieces and replicates them at strategic locations within the cloud. The division of a file into fragments is performed based on a given user criteria such that the individual fragments do not contain any meaningful information. Each of the cloud nodes (we use the term node to represent computing, storage, physical, and virtual machines) contains a distinct fragment to increase the data security

CONCLUSION AND FUTURE WORK

We presented a platform for situated awareness of and interacting with Web-based information Cloud computing growth raises the security concern due to its core technology. So, this system provides a better solution to achieve the security as well as performance by using three techniques, Graphical Password Authentication, Fragmentation and Replication. Nowadays, the use of the Graphical Password Authentication increases because it is very easy to remember and secure as compared to alphanumeric method and applications, as well as interpersonal communication. Future work should examine in more detail how people use tiny displays in architectural space over extended periods of time.

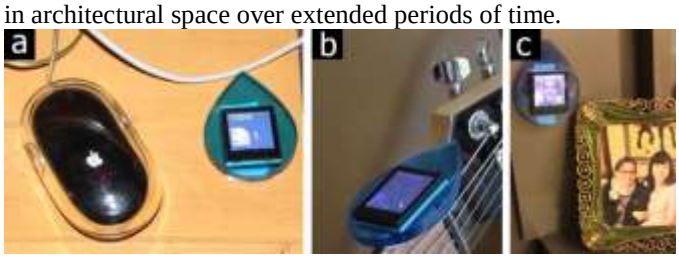

Figure . Emerging practices performed by users: a) P7 placed a CloudDrop associated to a TODO document prominently on her desk. b) P3 attached a CloudDrop associated with her guitar teacher onto the guitar. c) P1 attached a CloudDrop onto a

picture frame to stay aware of her friends.
Figure 8. A user places a task visibly on his coworker's desk.

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