TECHN☉ SITE

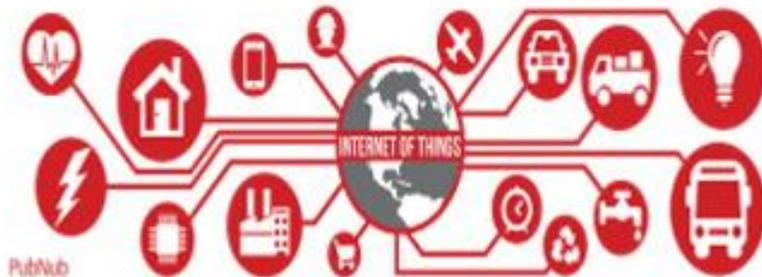## A Technical magazine of CSE Department

Volume 5   Issue 1   November 2015

Technical Articles

Article-1

HYBRID COMPUTING:

The current trend toward hybrid clouds is based on the assumption that companies have specific architectures, application landscapes, and data that they won't move to public clouds. Many factors will determine a hybrid cloud's success, including its architecture and management infrastructure. .

This move toward hybrid is based on the assumption that companies have specific architectures, application landscapes, and data that they will not move to public clouds. Whether it's "not now" or "never" will be seen as clouds continue to evolve. Eventually, everyone will likely be comfortable choosing private or public or some combination of the two. Successful hybrid cloud implementation requires a well-structured architecture that can support the functionalities of both private and public clouds and the seamless transitions between them. One simple example of hybrid cloud function is the ability to support workload overflow by moving data from private to public and back.

Another important aspect of hybrid clouds is the management infrastructure, which needs to be comprehensive enough to have visibility—though not necessarily full visibility—to both private and public

environments. These and many other nuances will determine a hybrid cloud implementation's success.

The market isn't making it easy for customers. The recent *RightScale 2016 State of the Cloud Report* suggested that an average user leverages up to six clouds for various purposes, such as running applications, performing test and development, or just dabbling with the cloud. But customers could also be confused because many cloud derivatives are mentioned frequently in academic and professional circles. Even the terms private and public clouds are causing some confusion in the market.

The main reason is it's possible to zone (or quarantine) a dedicated area in a public cloud data enter for one specific customer, effectively creating a private cloud for the customer. Hence the terms on-premise and off-premise are sometimes preferred over private and public, respectively. Others use the term "federated cloud" to refer to any multi cloud deployment, regardless of whether it's inter cloud, intra cloud, or hybrid cloud.

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(12K61A0555)

Article-2

INTELLIGENT SYSTEMS:

Online behavioral analysis and modeling has aroused considerable interest from closely related research fields such as data mining, machine learning, and information retrieval. This special issue provides a forum for researchers in behavior analysis to review pressing needs, discuss challenging research issues, and showcase state-of-the-art research and development in modern Web platforms.

With the rapid proliferation of Web applications for search, e-commerce, and social networking, more user behaviors are available online, opening a new perspective for behavioral data analytics that focuses on Web interactions. For example, users can build friendships with, send messages to, and make phone calls with other users, creating user-user interactions; they can also post messages, buy products, and check in at restaurants, creating user-item interactions.

Developing computational methods to model user behaviors, analyze different behavioral patterns, understand mechanisms underlying behavioral logs, and eventually predict future behaviors or detect strange ones is of paramount importance because it could both tremendously improve applications and potentially stop fraud, spam, and other attacks.

Recognizing this need, the US Department of Defense (DoD) listed computational models of human behavior as one of its six Disruptive Basic Research Areas in 2014). However, this new field presents clear challenges to behavior modeling: user behavior depends on content, intention, and context in complex online environments. Moreover, the online setting brings big challenges to behavioral data analysis because user behavioral data is Web scale, heterogeneous, multidimensional, highly sparse, and dynamic.

Online behavioral analysis and modeling has aroused considerable interest from closely related research fields such as data mining, machine learning, and information retrieval. We feel now is the right time to review and consolidate recent progress in user behavior analysis as well as chart future research challenges. This special issue provides a forum for researchers in behavior analysis to review pressing needs, discuss challenging research issues, and showcase state-of-the-art research and development in modern Web platforms. The selected articles underwent a rigorous extra refereeing and revision process.

Modeling online user behavior for social good is becoming an important and promising research direction. To prevent the conduct that can lead to obesity and to promote wellness and healthy behavior in a social network, Nhathai Phan, Javid Ebrahimi, Dave Kil, Brigitte Piniewski, and

Dejing Dou propose a model in their article, "Topic-Aware Physical Activity Propagation in a Health Social Network," that analyzes activity propagation in different granularities; the authors also empirically analyze the correlation between the detected communities and health outcome measures.

Location is an important context for modeling user behaviors. With the rapid development of location-based services, users want better point-of-interest (POI) recommendations. In "Point-of-Interest Recommendations via Supervised Random Walk," Guandong Xu, Bin Fu, and Yanhui Gu propose a new POI recommendation framework that simultaneously incorporates check-in, review sentiment, and side information. The authors extensively evaluate their proposed method on real data and demonstrate its advantages.

Besides analyzing and modeling user behaviors, how to induct user behaviors is another key problem of ample significance. In "Trust Agent-Based Behavior Induction in Social Networks," Lei Li, Jianping He, Meng Wang, and Xindong Wu investigate the problem of user behavior induction in social networks. They introduce the trust agent, design features for trust agents according to group behavior characteristics, and propose a dynamic control mechanism to coordinate the behaviors of participants in social

networks. Their experimental results show that the proposed method can effectively control negative group behaviors in social networks.

In addition to legitimate behaviors, there's still a nontrivial part of user behavior that's motivated by profitable or social purposes, such as click fraud, malware distribution, or cyberbullying. The last (but not least) article, "Suspicious Behavior Detection: Current Trends and Future Directions," by Meng Jiang, Peng Cui, and Christos Faloutsos, describes detection scenarios in which techniques are employed to ensure security and long-term growth of real-world systems. The authors also discuss current trends in application problems and solutions and present possible future directions in this line of research.

The pressing needs, challenging research issues, and interesting opportunities discussed in this special issue should stimulate new thinking and create new methods for online behavioral analysis and modeling.

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(12K61A05A8)

Article-3

INTERNET OF THINGS:

The main aim of this module is to introduce the fundamental concepts of the Internet of Things and its applications and architecture models.To develop practical skills that can be transferred into a real-world environment. Extensions- More nodes, more connections, IPv6, 6LowPan, any TIME, Any PLACE + Any THING, M2M, IoT, Billions of interconnected devices, Everybody connected.

Expansions- Broadband, Enhancements- Smart networks, Data-centric and content-oriented networking , Context-aware (autonomous) systems. Extending the current Internet and providing connection, communication, and inter-networking between devices and physical objects, or "Things," is a growing trend that is often referred to as the *Internet of Things*. The technologies and solutions that enable integration of real world data and services into the current information networking technologies are often described under the umbrella term of the Internet of Things (IoT).

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(12K61A0571)

Article-4

ANDROID:

Android 7.0 "Nougat" is an upcoming release of the Android operating system. First released as an alpha build on March 9, 2016, it is expected to be officially released in the third quarter of 2016. Android 7.0 introduces notable changes to the operating system and its development platform, including the ability to display multiple apps on-screen at once in a split-screen view, support for inline replies to notifications, as well as an OpenJDK-based Java environment and support for the Vulkan graphics rendering API, and "seamless" system updates on supported devices.

Android Nougat introduces a split-screen display mode, in which two apps can be snapped to occupy halves of the screen. An experimental multi-window mode is also available as a hidden feature, where multiple apps can appear simultaneously on the screen in overlapping windows. The notification shade was also redesigned, featuring a smaller row of icons for settings, replacing notification cards with a "sheet" design, and allowing inline replies to notifications (this feature is implemented via existing API's that are used for similar functionality on Android Wear). Multiple notifications from a single app can also be "bundled".

The "Doze" power saving mechanism introduced in Marshmallow was expanded to include a state activated when the device is running on battery and the screen has been off for a period of time, but is not stationary. In this state, network activity is restricted, and apps are granted "maintenance windows" in which they can access the network and perform background tasks. As in Marshmallow, the full Doze state is activated if the device is stationary with its screen off for a period of time. A new "Data Saver" mode restricts background mobile data usage, and can trigger internal functions in apps that are designed to reduce bandwidth usage, such as capping the quality of streaming media.

On devices shipping with Android Nougat, the "Verified Boot" policy (introduced partially on KitKat, and displaying notifications on startup on Marshmallow) must be strictly enforced. If system files are corrupted, the operating system will only allow operation in a limited-use mode or refuse to boot at all.

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