Bring Your Own Device (BYOD) Coming to a Company Near You Soon

Kevin Curran, University of Ulster, UK

Bring Your Own Device (BYOD) describes the recent trend of employees bringing personally-owned mobile devices to the workplace, and using those devices to access privileged company resources such as email, file servers, and databases. There is a real threat that allowing a multitude of devices onto the corporate network widens the loopholes available for attackers. IT managers however should be able to address many of the obvious vulnerabilities through application tunnels, black-listing, whitelisting, and dynamic context-aware policies. This will of course be done along with blocking of rogue devices, unauthorized users, and non-compliant applications.

Some companies are also bringing together bring your own device (BYOD) and cloud-based applications as part of their long-term infrastructure There is a risk however in doing both at the same time but one could also state that implementing an effective BYOD strategy without a cloud-based architecture is too costly. More and more people are moving to cloud-based storage through apps such as Dropbox. There is of course a danger here that employees move sensitive company files onto Dropbox. There are ways to offer secure enterprise services but it can be difficult to move users over to the enterprise service and inevitably, sensitive material will drift onto the users 'private' dropbox. Educating users on BYOD is a priority. There has to be clear messages from management as to which applications are to be avoided...and 'why'. Educate the employees as to why the organisation feel it is a threat. It may also be wise to implement a tiered access level to cloud services/applications across the organisation so as to only allow access on an 'as needed basis'. Another approach is to limit the type of applications such as email, contacts, calendars, business automation, ERP….

Mobile device management can address diversity in the long run. One of the simplest methods is by only providing applications for platforms that the company wishes to encourage. Should a company fear the widespread use of 'rooted' android devices and their associated security vulnerabilities, then they can attempt to steers employees to Blackberry or IoS applications for instance. Mobile device management can deliver on manageability, maintenance and governance aspects for mo-

bile applications and the mobile infrastructure landscape. Mobile device management can also help with the major problem of lost devices and subsequently lost corporate data. An effective policy and prior education will ensure that the company can wipe the lost device without fears of a lawsuit. Of course, the company has to be informed that the device is lost. This issue alone will give many IT managers nightmares. Mobile device management can also assist in the necessary review of the regulatory, industry, and corporate policies to which an organization is beholden such as HIPAA or guidelines such as from the SEC. It is crucial that the corporation's mobile strategy supports current compliance controls. One aspect which should not be overlooked is the fact that these devices belong to the employees and traditional 'rules' and mandates for enforcing new updates may not simply work. Corporate governance and security frameworks however will be severely tested as employees leave along with sensitive enterprise data on their mobile devices. I mean, can an IT department do a remote wipe.

Ultimately, a cloud based architecture combined with a BYOD strategy can deliver value. In fact, to many it seems that a truly effective BYOD model needs to be tightly integrated with a cloud-based architecture. Of course these cloud solutions differ from the lighter cloud model where users interact with web based applications such as Google Docs to a virtual desktop model where they login to a portal and all share 'nailed down' applications and workspaces. Each of these models differs greatly in cost, support and security however both avenues should still lead to reduced total cost of ownership per employee. So expect to see the latest acronym (BOYD) appear more frequently for the foreseeable future.

Thus, onto the contents of this issue: Designing innovative communications services that scale to facilitate potential new usage patterns can pose significant challenges. In "Scaling Instant Messaging Communication Services: A Comparison of Blocking and Non-Blocking techniques," Griffin, Ryan, de Leastar, and Botvich state that this is particu-

larly the case if these services are to be delivered over existing protocols and interoperate with legacy services. This work explores design choices for such a service: large scale message delivery to existing Instant Messaging users. In particular we explore message throughput, accuracy and server load for several alternative implementation strategies. These strategies focus on approaches to concurrency, with best practice in current and emerging techniques thoroughly benchmarked. Specifically, a conventional Java Executor approach is compared with a functional approach realised through Scala and its Actors framework.

In "Conceptually Advancing "Application Mobility" Towards Design: Applying a Concept-Driven Approach to the Design of Mobile IT for Home Care Service Groups" Johansson and Wiberg explore Context Awareness Supported Application Mobility (CASAM). Mobility has become an omnipresent part of our modern IT society. Alongside the general mobility taxonomy of mobile users, terminals, sessions and services, there are also more specialized forms of mobility. Context Awareness Supported Application Mobility (CASAM) or "Application Mobility" is one such form. CASAM builds on the idea of using context to move an application between different devices during its execution, to provide relevant information and/or services. In this article, the authors use a concept-driven approach to advance mobile systems research, integrating it with a more traditional user-centric method and a case study, further exploring the concept of CASAM.

The inclusion of Information and Communication Technologies, especially mobile devices, in learning environments has allowed both the emergence of new ways of learning and the adaptation of traditional teaching methods. In this sense, Ambient Intelligence (AmI) paradigm represents a promising approach that can be successfully applied to education. Pervasive computing, context and location awareness are AmI features that can allow students to receive customized information in a transparent way. Fortunately, there are several technologies that

can help to gather such information. In this regard, Real-Time Locating Systems (RTLS) is a key technology that can improve context-awareness in AmI-based systems. In "Using ZigBee in Ambient Intelligence Learning Scenarios" García, Alonso, Tapia, and Corchado present the use of a novel RTLS based on ZigBee technology that provides users' positions in order to enhance context information in learning applications. This way, this system allows customizing the content offered to the users without their explicit interaction, as well as the granularity level provided by the system.

Finally, Social Network Analysis is attracting growing attention as social networking sites and their enabled applications transform and impact society. Quinn, Chen and Mulvenna in "Social Network Analysis: A Survey" provide a comprehensive review of social network analysis state of the art research and practice.

They first examine social networking and the core concepts and ingredients of social network analysis. Secondly, they review the trend of social networking and related research and then they consider modelling motivations, discussing models in line with tie formation approaches, where connections between nodes are taken into account. The paper outlines data collection approaches along with the common structural properties observed in related literature. They also discuss future directions and the emerging approaches in social network analysis research, notably semantic social networks and social interaction analysis.

Kevin Curran
Editor-in-Chief
IJACI

Kevin Curran BSc (Hons), PhD, SMIEEE, FBCS CITP, SMACM, FHEA is a Reader in Computer Science at the University of Ulster and group leader for the Ambient Intelligence Research Group. His achievements include winning and managing UK & European Framework projects and Technology Transfer Schemes. Dr. Curran has made significant contributions to advancing the knowledge and understanding of computer networking and systems, evidenced by over 700 published works. He is perhaps most well-known for his work on location positioning within indoor environments, pervasive computing and internet security. His expertise has been acknowledged by invitations to present his work at international conferences, overseas universities and research laboratories. He is a regular contributor to BBC radio & TV news in the UK and is currently the recipient of an Engineering and Technology Board Visiting Lectureship for Exceptional Engineers and is an IEEE Technical Expert for Internet/Security matters. He is listed in the Dictionary of International Biography*,* Marquis Who's Who in Science and Engineering *and by* Who's Who in the World*. Dr. Curran was awarded the Certificate of Excellence for Research in 2004 by Science Publications and was named Irish Digital Media Newcomer of the Year Award in 2006. Dr. Curran has performed external panel duties for various Irish Higher Education Institutions. He is a fellow of the British Computer Society (FBCS), a senior member of the Association for Computing Machinery (SMACM), a senior member of the Institute of Electrical and Electronics Engineers (SMIEEE) and a fellow of the higher education academy (FHEA). Dr. Curran's stature and authority in the international community is demonstrated by his influence, particularly in relation to the direction of research in computer science. He has chaired sessions and participated in the organising committees for many highly-respected international conferences and workshops. He is the Editor-in-Chief of the* International Journal of Ambient Computing and Intelligence *and is also a member of 15 Journal Editorial Committees and numerous international conference organising committees. He has served as an advisor to the British Computer Society in regard to the computer industry standards and is a member of BCS and IEEE Technology Specialist Groups and various other professional bodies.*