

Mobile Enterprise Management: SAP Case Study

SAP's CIO Discusses Managing Mobile Devices



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Purpose and Intent

The Bring Your Own Device (BYOD) trend continues to create challenges for enterprises wishing to manage mobility and mobile devices, especially when devices bought by employees are also used within their employing enterprise. Using case studies from different user organizations, Constellation Research offers clients a mechanism to discover what others had to find out for themselves.

Executive Summary

In this report, SAP CIO Oliver Bussman discusses mobility, adoption of mobile devices, BYOD and ensuring that each of their enterprises preserves both enterprise security along with supporting users. This is not as simple as it might initially seem, especially when you have over 20,000 such devices.

Besides talking through their decision processes and selection criteria for mobile enterprise management software, Mr. Bussman describes the lessons learned and best practices they have encountered and/or introduced.

Behind SAP's Mobile Strategy

In 2009 Oliver Bussman was appointed CIO of SAP AG based in Walldorf, Germany. Mr. Bussman has broad experience in Information Technology management at SAP and previously as regional CIO of Allianz for North America and Mexico (NAFTA). Prior roles included positions in the Allianz Group in Germany and the United States, as well as at Deutsche Bank.

At SAP he is responsible for the company's cross-departmental Information Technology function and ensuring IT supports SAP's strategic objectives. By the end of 2011, SAP possessed in excess of 22,000 iPhone and iPad devices, with other smart device types coming into use. In this case study, created from a discussion with him in January 2012, he discusses how SAP approached and addressed the mobility issues that today's smart devices raise in an enterprise.

SAP Applies Mobile Enterprise Management to its 20K+ Mobile Devices

Oliver Bussman, CIO, SAP

“I will start by describing what we have faced at SAP,” said Mr. Bussman. “I see devices – whether iPhones, iPads or Android devices – as being essentially consumer devices. These were never intended for enterprise usage. But they are being bought by our employees who then want to use them at work within SAP.

“Our initial enthusiasm for the iPad started with its announcement in January 2010. While this interest originated in our software product development groups as a way to improve information provision to users from our applications, we in IT looked into the future and predicted that interest and adoption would reach much deeper into SAP than just product software development. We saw that usage could come from any part of our organization.

“Our first challenge, therefore, was to obtain acceptance that this would happen (as it has). The next was associated with the consumer aspects – the lack of enterprise capabilities and the certainty that we could not restrict device choice. The third was to identify a device-agnostic, general-purpose mobile strategy that could adapt as user tastes and preferences evolved and as devices themselves progressed. We are very conscious that the mobile consumer business changes far faster and far less predictably than traditional IT, as well as constantly adding attractive new functions and capabilities.

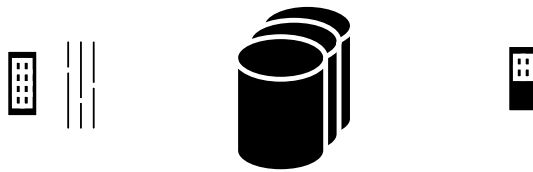
“At the same time we understood the corporate policy requirement – that use of consumer devices within SAP had to preserve and ensure complete security for SAP and its assets in at least as effective a way as we had demanded and provided for laptops and other IT assets like Blackberries. A related objective was that acceptance of consumer devices must not increase our support commitments or overhead: such costs could not rise in line with the rise in the adoption of consumer devices. We knew, even in 2010, that we could not afford a support environment which had individual device orientations, especially when we were likely to face an almost infinite variety of different devices. One IT goal became that we should be able to use the existing Blackberry BES team and its expertise without expanding the team's numbers or reducing the quality of support that this team were already providing to employees with Blackberries.

“Thus our overall end-to-end objectives can be distilled into three (and shown in Figure 1):

- Permitting the (agnostic) introduction of consumer devices (most notably Apple iOS devices and Samsung Android devices).
- Preserving and conforming to our existing security and operational policies.
- Preventing our support costs from rising, even though more and more consumer devices would be arriving.”

Figure 1. SAP End-to-End Mobile Device Solution

SAP End-To-
End Solution



Finding a Solution

“Initially, iOS devices were our focus,” said Mr. Bussman. “From the iPad's arrival in Spring 2010, we worked with Apple to try to address our requirements. Looking back, iOS version 3 simply did not have the facilities at that time to do what we wanted.

“In August 2010 SAP acquired Sybase. Within Sybase was a unit which already focused on mobile device management with a set of products sold under the Afaria name. While our software development brethren were refining the overall product approaches of the combined company, IT found under our noses what we needed – and we could start immediately because SAP already owned Afaria.

“What attracted us in IT particularly to Afaria was its focus on the whole remote mobile management lifecycle – from acquisition to configuration to security to updating to app installation and removal and finally to wiping (if a device was lost) or decommissioning (either of an SAP device or when somebody leaves the company). Possessing a comprehensive management approach is a key step in containing the support costs I referred to earlier.

“Furthermore, Afaria was already device agnostic. It supports iOS and Android and other devices. Thus, another of our requirements was satisfied and, when in October 2010 Apple introduced over 90 APIs in iOS 4, Afaria was pre-prepared and rapidly able to exploit these new APIs. This opened up the manageability for SAP (and other enterprises) of iOS devices.

“We introduced Afaria, starting in the Autumn 2010. Let me quote one measure of its success. In the summer of 2011, in six weeks we were able to deploy 3000 iPads out to our sales force without problems.

“To do something as extensive as this you need automation. Because we had, in Afaria, such an automation tool, we could ship a device to an individual and in parallel send a URL and an activation code. The new user would start up the iPad, access the URL, enter the activation code and then Afaria would configure that iPad for specific use by that individual – including all permissions, email, applications and other aspects which ensured this device conformed to SAP mobile and IT policies. In addition, each new iPad user was enabled to access SAP's own internal mobile apps store, so that he or she could download the apps needed to be able to work from their mobile device.”

Self-Support – a Key Ingredient

“To minimize the support effort, we decided to use Web 2.0 tools, like Wikis,” said Mr. Bussman. “Our intention was to provide as much self-service support as possible to our users of mobile devices, in order that the internal SAP support organization did not have to grow or cost more.

“This was more than just providing Level 1 help. We enabled it so that our users could support each other. Thus, if someone encountered a mobile device problem, he or she could go online to find out if it had been solved before or, if not, ask if anyone knew of a solution. By introducing a sense of community self-help we rapidly expanded our internal online knowledgebase. And we added local

area 'mobile champions' who could provide additional support on an individual basis. This has proved popular (and I always recommend this to customers if they ask about introducing mobility).

“Yet we went still further. We found (as I had personally expected) that colleagues were happy to help other colleagues. This significantly reduces the load on internal IT support. It also makes it much easier for IT support to focus on SAP and infrastructure issues, rather than be distracted addressing the personal technology problems (Level 1 tickets) that do arise and cost to solve but which really do not add much value to SAP. Plus, because Afaria offers the self-help capabilities (for example, to help users reset devices, recover, etc.) we further minimized the load placed on support.

“The consequence of all this is that we have the confidence and the ability to undertake massive mobile device deployments when we need. By the end of 2011, Afaria was managing more than 14,000 iPads and 8,000 iPhones (one of its customers now does it for more than 50,000 devices so we are not its biggest user). Through the combination of self-help, mutual support, and Afaria automation applied across the full mobile device life-cycle, we have contained our support costs, respected our corporate security mandate and enabled our internal customers (of IT) to use the technologies they prefer, rather than those which IT might have had to mandate.”

BYOD, Privacy and International Roaming

“I am also asked about whether this same approach can be applied to laptops and other BYOD devices,” said Mr. Bussman. “In principle the answer must be 'Yes.' For SAP this is more complex. Developing software is the core of SAP's business. This means that there are sound arguments for keeping personal computing and the specialized software development tools that we use for development as a separately managed environment. There is more than just IP at stake. Equally, there is some minimum that SAP needs to provide to enable its people to produce.

“That said, for BYOD devices that are not part of the development organization (for us, laptops) these could be managed like other mobile devices. Indeed, though not relevant at SAP, there is no particular reason that, once a tool like Afaria has been set up, why non-IT functions could not take responsibility for mobile policies and their implementation. Largely it will depend on the complexity as well as security demands of each enterprise.

“My key point is that we view BYOD as being unstoppable. At an executive level we have considered what to do – but prevention is not credible. Once you understand this you must introduce some form of enterprise-wide management of mobility. This is not just a technical issue. It has human and legal consequences that must be incorporated in the management of mobility once you have made your BYOD decisions.

“Within that context you must define policies based on understanding the legal position and then execute these within your mobile management system. Do not underestimate this if you operate internationally. Our basic policy is not to store any application-related data on a BYOD or mobile device that does not belong to SAP. If there is a business need for data storage on a mobile device, this must use the 'vault' function that both Android and iOS possess. Only the company has access to that vault.

“In general, however, our preference is to do all processing and data storage on the server side (where the mobile device is the client). In the USA and Asia, there is not so much of an issue. But in

the European Union there is an obligation to keep what belongs to the enterprise and what belongs to the user demonstrably separate (which is probably good practice globally, even if it is not obligatory). This applies explicitly to data (where the vault approach works) and also to email; in the latter case, ensuring employees have separate personal and work emails is sufficient.

“What is clear to me is that the investment SAP made in thinking through its mobility-related policies and how to apply these in different geographies through Afaria was fully worthwhile. The simple fact is that there are different requirements and obligations in different places. As a reputable international company we have to conform to those requirements even if they are different in those different places.

“If your organization operates internationally, put in the legal and HR time and effort in. It will pay off in avoiding problems further down the road.

“Let me also raise another international dimension about mobility. International roaming charges (especially data ones) are extraordinary. When people travel across national borders and want to use their mobile devices for data access, the costs can be prohibitive (Telefonica, for example, will charge inattentive Spanish users a mere Euros 11.80/MB in parts of Asia). This can produce horrific and unexpected expenses, incurred (usually unwittingly) by an employee on behalf of his or her employer in legitimately doing his or her employer's work.

“Possessing an international-aware mobile management platform can save vast amounts of unnecessary expense – by ensuring that mobile device users exploit the corporate plans already operating in other countries. When an employee has to travel to another country, he or she can ask for the details and have this available on arrival. The telephone carriers may not like it but the financial savings here can pay for a lot of mobile device management – as well as avoid all the employee and management misery spent sorting out roaming bills.”

Executive Uptake

“The number one use-case for executives and adoption of tablets that SAP sees is for business intelligence,” said Mr. Bussman. “The capability to have access to reports, dashboards and data and as well as be able to drill down to find out more through a touch interface was what excited my software development colleagues about the iPad back in 2010. They were right.

“Today we find more and more executives (including our own) looking to have their work, and the information needed for this, organized to exploit what tablets bring. This will likely continue and continue.

“Intriguingly, this makes executives use more and more like a form of gaming interaction – and when SAP delivers data in real time (where appropriate) this accentuates some gaming similarities (though perhaps not the fun). Enabling Business Objects (an SAP offering in the business intelligence field) took only 2-3 days for us: it was a quick win.

“We have confirmation of this from analysis of what executives and managers ask for from a desktop compared to from a tablet. We see that executives are asking more questions because it is either easier or more fun to access the data. This goes deeper than constantly checking emails on an iPhone or Blackberry. It involves monitoring what is happening in a business and being able to interact with what is happening, by asking questions of the data and making decisions. It does not

matter whether this is about manufacturing or sales or finance: the same applies across the board. Take HR: an HR executive responsible for hiring a key new employee will want to know how the process proceeds in order that it might not fail through inattention or something dropping between the cracks.

“This produces an experience very different from the desktop. For example, a tablet is simply more physically accessible. Think about it. You can keep the tablet with you in a way that you do not (for most people) with a laptop (never mind a desktop). 'Laptop' is a misnomer – it does not sit on your lap; pretty much you have to go to a desk or table to work. Now compare that need to make a move (before doing the work you want to do) with just having access in your hand from your tablet.

“SAP is incorporating business workflow activities into the tablet and application experience. This will become ever more powerful for the executive. Let me give you a personal example. I approve shopping carts for IT purchases. My people prepare the rationale and data for me to make decisions. If I approve, and because the shopping cart is part of the workflow process, that approval authorizes the next stages of the purchase process to continue. Business speeds up when there is no delay to convey what decisions were made.

“Furthermore I can make decisions from anywhere I have a secure connection – it does not have to be when I am in the corporate office or in my home study but could be in the airport lounge or waiting for an appointment or between meetings and even in meetings. This is convenient in a way that going to a desk is not.”

What Has Changed Since 2010, and Will Change?

“What has changed since 2010 is the scale of mobility acceptance and use. Then 'real mobility' was really just starting. Today SAP has 22,000+ smart mobile devices and this number continues to grow. We also have over 40 mobile-specific apps and with many more on the way (for our own use and for customers). Every month the numbers rise.

“What is also changing is the degree of involvement by the lines of business. We are finding much greater interest by the lines of business and with that greater involvement is interest in what can be achieved both to meet their own objectives as well as exploit our IT infrastructure and management capabilities. This has both a positive side – the willingness to work with IT – and a less positive one: mobility tends to breed impatience. Doing 'mobility right', however, is not an overnight task.

“Looking to the future, if I think about mobile technologies, I am not yet convinced that the tablet in its current incarnation is the replacement for the laptop or PC. The lack of mouse control and Office do hold back full adoption. Imagine trying to edit or manipulate PowerPoint or Word without a mouse; it is not a pretty task when you are on the road.

“But go a stage further. It is clear that Apple changed the technology game with the ability to touch a screen and with the tablet form factor and the new screen clarity. Change will continue. My own expectation is that we will rapidly move beyond mouse pointing and the touch screen. Voice may well become the input and control medium of the future.

“Apple has started with Siri. I expect to see much more innovation around this, though it does not change the management basics – just the mechanisms. This is what could make the PC a specialty device, but that is still in the future.

“The consumerization of IT is already driving the IT business. That is no longer avoidable and consumer mobility continues to progress and progress. When I want to stay ahead, I go to CES (the Consumer Electronics Show in January each year) and then I try to think about how what I see there will change my role and my job, and mobility, 2-3 years out. The role of the CIO has changed: I have to consider consumer trends as much as traditional IT ones.”

Lessons Learned and Best Practices

“My first best practice is to think broadly about what mobility can do for an organization,” said Mr. Bussman. “This is not just about a couple of apps on a specified device. Smart devices (I include smartphones and particularly tablets) have penetrated enterprises too far for this.

“You have to think what needs to happen in IT to support an enterprise where executives manage from a tablet, sales people sell through a tablet, engineers work through a smart device, etc. Only if you think broadly enough will you perceive the possibilities. Once you see those possibilities, if you work in a decent-sized organization or business, you will realize that managing mobile devices is an imperative if you are to avoid being overwhelmed. This leads to a raft of other questions (all of which need addressing):

- Will we want agnostic device mobility?
- What early wins (like business intelligence) and implementations can we deliver on mobiles soon?
- How does our application roadmap change as mobility arrives?
- Where should we place responsibility for mobility within an organization and do we have the policies and infrastructure to handle mobility and then to deliver?
- What steps do we need to take to keep support costs at a reasonable level?
- How much can we automate?
- How will we manage all this?

“My second best practice is to adopt an approach which accepts a mobile device reality where the enterprise can no longer decide what is best for everybody. My own experience is that users will buy new consumer devices for themselves and then find a way to 'bring these to work.' You can try to resist this but, like the Dutchman and the hole in the dyke, you will only temporarily succeed.

“The consumerization of IT is happening. Regard consumer mobility as a change that can work for you rather looking at it as a tide to resist. Lines of business are becoming so technologically sophisticated and adept that they will discover external services to support and manage the devices they want (or possess). If this happens, and IT was not proactive and encouraging, IT can find itself marginalized.

“My third best practice is that, if you want to maintain and respect existing (and new) corporate policies, you must have some form of mobility management. The first step to a secure environment is one where you know how you manage mobile devices of all sorts. You can try to develop everything for yourself. Why bother? There are too many changes and new devices arriving. Let

specialists (like our Afaria people) do the hard work and you do the management. Remember, also, to involve early those responsible for security: this is mandatory if you are to provide mobile access to enterprise information assets.

“My last best practice is to create a self-help infrastructure (like we did around Wikis). With ever more new devices arriving, self-help and community help can enormously reduce the burden on IT first level support as well as remove what really does waste expensive IT expertise. Regard your people using smart devices as being smart people.”

Actionable Advice: Follow These 9 Steps to Success

As Mr. Bussman describes, mobility has arrived, in many different and varied forms. Already there is a complex matrix required to understand the range of device types (smartphones, tablets, laptops), operating systems and versions (including Android, Blackberry/QNX, iOS and Windows) as well as form factors (from 4" to 7" to 10" and above) and how this affects delivery.

Then there is BYOD, which turned upside down a concept that was sacrosanct to IT – that the enterprise owned the device (like a desktop or even laptop) and could therefore dictate what a device's user could and could not do with it. The device management environment has changed, and enterprises need to change.

Taking the input from Mr. Bussman and adding parallel Constellation Research experience and findings, if you follow these nine steps you will improve your enterprise's ability to succeed with the new mobility and its associated facets:

1. **Accept that the BYOD and mobility combination are here.** Enterprises can try to resist mobility and BYOD. It might work for a while, but it will not work for long. Better results will arrive if enterprises signal acceptance early and adapt to encourage use of BYOD and its mobile characteristics when working with the enterprise's IT environment.
2. **Assess how urgently action to address mobility is required.** You may think you do not face a BYOD+mobility tidal wave. Find out if you do. Constellation Research offers a Mobility Action/Urgency Questionnaire and supporting approach if you need evidence.
3. **Adopt a mobility management approach that automates as well as secures the enterprise's assets.** Measure BYOD+mobility in terms of numbers of devices (not employees) – remembering that some employees will have more than two smart devices: smartphone, tablet and laptop. Insist that mobile management solutions include high degrees of enterprise-quality security, self support, automation as well as an internal app store (so that not everything has to go through the Apple iTunes App Store, Android Market, etc.)
4. **Refuse to let support costs rise, even though the number of devices to support is rising.** This is about treating smart device users as being intelligent and enabling a support infrastructure where the knowledgeable can voluntarily assist others – without incurring enterprise support costs. The inverse of this is that support should focus on only those aspects that matter (or add value) to the enterprise and not on solving individual employees' own personal puzzlements with their devices.
5. **Do the necessary legal, compliance and policy preparation up front.** Mobility brings legal, compliance and policy considerations. Do the preparation early and in depth so that those managing mobility can incorporate the results into the mobile management platform (whether on-premise or off-premise).
6. **Look for quick wins to accelerate acceptance of enterprise-imposed constraints.** Constraints on how employees use their devices with enterprise IT are inevitable. Reduce resistance by identifying quick and straightforward 'wins' where the employee with his or her

device feels empowered. Business intelligence is one obvious example, but there will be many others.

7. **Understand how mobile roaming can devastate your bottom line.** International roaming charges (especially data ones) are extraordinary. When people travel across national borders and want to use their mobile devices for data access, the costs can be prohibitive. (Telefonica, for example, will charge inattentive Spanish users a mere Euros 11.80/MB in parts of Asia.) This can produce horrific and unexpected expenses, incurred (usually unwittingly). Possessing an international-aware mobile management platform can save vast amounts of unnecessary expense as well as avoid personnel recriminations.
8. **Consider BYOD+mobility to be a strategic business opportunity.** BYOD can reduce CAPEX significantly in some enterprises. Mobility beyond simple phone functions opens up information and delivery options. The more open the enterprise “mind,” the greater the payback.
9. **Remember to be friendly.** In the past, IT has prescribed policies and proscribed activities – because it could do so (it owned the technology). That will no longer work and may even be a reason to consider making another, more employee-friendly department responsible for the management of BYOD+mobility (albeit within an IT-designed envelope). A related consideration – do not assume that traditional systems management tools apply to BYOD+mobility: most are inflexible and better suited to datacenters than employees.

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Disclosures

Your trust is important to us, and as such, we believe in being open and transparent about our financial relationships. With our client's permission, we publish a [list](#) on our website.

Analyst Bio: Charles Brett

Mobile and Infrastructure Strategist for Enterprises, Blended with CoIT

Charles Brett is currently Vice President and Principal Analyst at Constellation Research, Inc. For more than 25 years Charles has focused on delivering common sense to the application of technologies, especially software ones, in organizations of all sizes around the world.

Expertise

Charles' initial focus at Constellation is on mobility management in the enterprise including Mobile Device Management (MDM) and Bring Your Own Device (BYOD). He has consulted and worked with users and vendors on high-performance, low-cost processing including organization-specific, cloud-like computing, event processing/complex event processing (especially when combined with GPS), enterprise architecture including automating the discovery and management of applications, plus integration of diverse systems, virtualization, and how to cut costs and electronic publishing. He has an ongoing interest in automated metering for the electricity, gas and water industries.

Specific sectors of interest and experience include finance (especially systems supporting wholesale finance), telecommunications and energy and its conservation.

Media Influence

Previously, Charles was the Editorial Director of *MIDDLEWARESPECTRA* (now published as *INSIGHT-SPECTRA*), a Journal focusing on the use of software, especially integration with its multiplicity of middleware technologies.

Charles has been a regular at multiple industry conferences and has written for numerous publications including *The Times* of London and the *Financial Times*.

He was the General Chair in 2005 of the bi-annual High Performance Systems Workshop.

He is also the author of "Explaining iTunes, iPhones and iPads for Windows Users," (2011) and "The 5 Axes of Business Application Integration," (2004).

Education

Charles has an MA and BA in Modern History from the University of Oxford.

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