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## POWERING DIGITAL BUSINESS



## From Disaster Recovery to the Internet of Things with SAP HANA in the Cloud . . . and pumpkin beer

### Abstract

Innovation can come from the most unexpected places. When a digital transformation project at a leading brick and mortar retailer gets derailed, it's the BCDR (business continuity and disaster recovery) team that gets it back on track, using a smart approach – applicable to any industry – for quickly and securely deploying SAP HANA in the cloud.

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# A Retail Cloud Project in 15 Scenes

"It's tough out there," your boss says. "I mean, everything and everyone is digital – most of all our customers." He's come to your desk to fetch your TPS report – and as you search through piles of papers for your only hardcopy, you're not really paying attention.

Which doesn't matter – because, let's be honest, you've heard it all before: How the always-on, connected customers of today have the upper hand in the retail industry. How retail companies – especially the brick and mortars like yours – now need to deliver **"outcomes"** and **"positive experiences"** through **"real-time brand engagement"** in a **"digital economy."** And how the IT organization had better get on the ball before the competition steals away market share.

You know all of this by heart, so as your boss rambles on, what you're really thinking about is why he doesn't just download your report from the Dropbox link you sent him last week. But then you realize the real reason he's at your desk on this Friday morning. He wants to talk.

Why? Because there's change afoot. "This digital transformation they've been talking about for months? It's starting to get serious."

## Later, at the Pub

So, after work you join your boss for a beer. Turns out, yes, the digital transformation initiative is moving forward. Your company – a longtime SAP shop – wants to implement SAP HANA. It wants to tackle the Big Data challenge – collecting, analyzing, and responding to insights for "sense and respond" capabilities that'll allow your company to engage customers in real-time with personalized products and services that can be offered up in the moment.

"This, apparently, is what the digital economy is all about," your boss says, draining the last of his local harvest microbrew with a hint of pumpkin. "The question is, what does this mean for our group?"

## The Bee Sitters

Informally, your group is known as the Bee Sitters – a lazy enunciation of "BCDR," the acronym for **Business Continuity and Disaster Recovery**. The Bee Sitters ensure uptime and availability for critical IT systems. Part of this job is maintaining a duplicate system (servers and software) at an "undisclosed location" in case of disaster – something you've always found to be extraordinarily expensive.

To your mind, digital transformation could mean BCDR cloud deploy-ment – with all the advantages of simplicity, efficiency, agility, and lower cost. Before you can stop it, this idea moves from your mind to your mouth: "I think we should run our disaster recovery system in the cloud," you blurt out. Your boss sighs heavily, shuffles uncomfortably in his chair, and orders a second round.

## Objections

"The Bee Sitters will never go for it," he says. "I'll give you three reasons:

- Nobody wants to lose their job to the cloud.
- Nobody wants to lose control to some third-party outsourcer.
- And nobody trusts the cloud when it comes to security.
- Also, nobody wants to deploy something as complex as SAP HANA in the cloud. It'll just never fly."

That's actually four reasons, you notice – but you keep this to yourself. Though you can think of some pretty good answers to his objections, you'll take the weekend to mull things over. When the beer arrives, you toast to the Bee Sitters. This is when you decide you don't really like pumpkin in your beer – but you keep this to yourself as well.

## Monday Morning

When you get to your desk on Monday morning, you already have in your head the outlines of a new report for your boss: By forging a test-case path to the cloud, the Bee Sitters could actually take a leadership role in your company's digital transformation. Best of all, nobody's losing their job. Yes, moving to the cloud will change roles – but, you argue, if you're against change, the IT business may be a bad fit. What will emerge, you say, is more of a shared accountability model where some responsibility for the

management of compute resources will be outsourced. But this will free up workers for more value-added activities such as continuous improvement initiatives and on-going innovation.

On the security front, you remind your boss of the time that hackers walked away with thousands of your customers' credit card records – and that according to a recent pen test, not much has improved since. Moving to the cloud, you argue, could actually improve cybersecurity because security is typically baked into cloud services from the ground up. Of course, there are no guarantees, but the same is true for on premise solutions.

## Lunch for Two

Over the course of the week, you fine-tune your arguments – but in the end, you never send your report. Instead, you find a quiet corner of the cafeteria where you and your boss have a semi-private lunch. After your salad but before diving into your green jello, you steer the conversation into a reconsideration of the cloud for BCDR deployment. You handle it all with such subtle genuflection that your boss comes to embrace your ideas as his own. It's almost as if you had planned it this way.

## Progress

Your boss, who is particularly effective at navigating organizational politics, gets a solid hearing on ~~your~~ his cloud deployment proposal. The upper-ups seem to like the test-case aspect, which would allow the company to wade into the cloud waters and get comfortable with the new paradigm on a non-production environment. And the cost savings are attractive as well.

"But there's one snag," your boss tells you. "You forgot my fourth objection."

"I thought there were only three," you respond with a sly smirk.

"No, I clearly remember four," he says. "And the fourth one is the hardest of all:

**How do you deploy SAP HANA in the cloud?**"

## Setback

Bummer. You were almost there. But your boss is right. SAP HANA is notoriously difficult to deploy in the cloud.

You want to give up – but instead you google. You look into cloud resource providers – and yes, there's a lot of chatter out there about the challenges vis-à-vis SAP HANA in the cloud. First you need to get up to speed with Amazon Web Services (AWS), Microsoft Azure, or any other provider. This is no easy task. To succeed, you'll need seasoned pros working the Linux shell and scouring chat rooms and community sites for clues on how to muddle through. It could take months to ramp up.

Next, there's the complexity of SAP HANA itself. For your IT shop, SAP HANA is a new data management paradigm based on in-memory data processing. While in-memory is faster than disk-based i/o, it can be more complex. And the lack of a standardized processes for cloud deployment, migration, and integration only adds to the challenge.

At this point, you're thinking you've painted yourself into a corner. But then you get an idea.

## SAP HANA-as-a-Service

What you need is some sort of managed cloud service that automates and accelerates the deployment of SAP HANA in the cloud. This is when you discover Ocean9 – a cloud-native, modular as-a-service solution for jumpstarting SAP HANA deployments in the cloud. With Ocean9, you can configure and deploy SAP HANA systems for productive or non-productive use in just minutes. Scalability doesn't seem to be a problem either — with Amazon Web Services offering 30 GB to 34 TB RAM and Microsoft Azure even 30 GB to 32 TB RAM for SAP certified configurations. For disaster recovery purposes, you don't necessarily have to pre-deploy a back-up system on servers in a distant data center. Instead you can back up critical data to the cloud in real time and model your recovery environment for rapid cloud deployment at a later time – only if disaster strikes. Within an hour, you can have a fully functioning SAP HANA landscape up and running – including your restored data.

The cost/benefit analysis is compelling. On the one hand, you can cut out almost half of your infrastructure – the half that sits dormant waiting for failover processes to kick in. And don't forget, you won't have to support two full-time resources to man the stations 24x7. Bolstering your position is a paper published jointly by researchers at the University of Massachusetts, Amherst and AT&T Labs, which makes a rather unequivocal statement: "We have compared the costs of running DR services using public cloud or privately-owned resources, and shown cost reductions of up to 85% by taking advantage of cloud resources. [1]"

On the other hand, if disaster does strike, you might sacrifice a few minutes of data as you fire up the recovery system. But you can mitigate against most of this potential loss with basic data recovery techniques. In terms of simplicity, risk, and cost savings, the business case is solid.

## Proof of Concept

Later the next day, your boss stops by for another TPS report. He wants to talk again. Turns out the digital transformation initiative is on hold. Budgetary reasons.
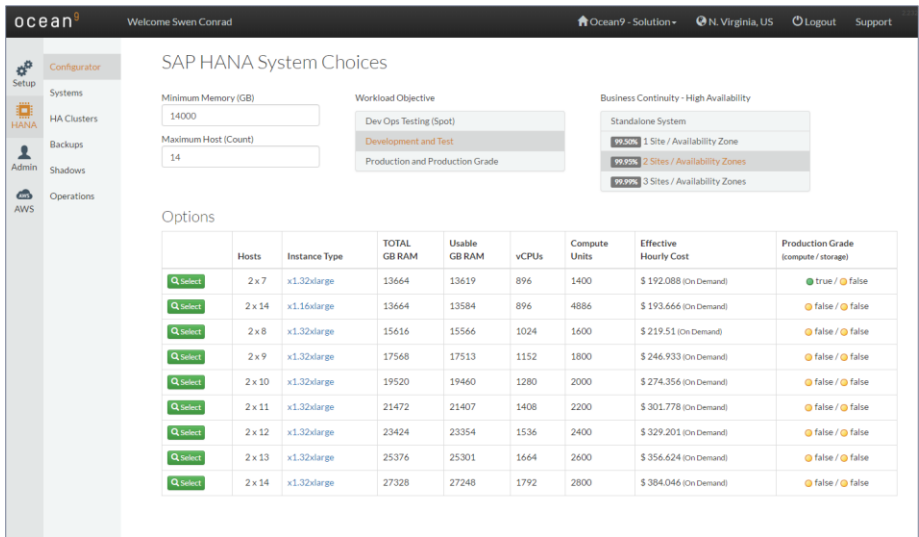


**Figure 1:**        Ocean9 Cloud Configurator for SAP HANA

"Maybe not," you say, surprised at your self-assurance. This is when you tell him about your cloud deployment solution with Ocean9. He's skeptical – but this time you don't need the weekend to mull over your responses. Instead, you show him a proof of concept.
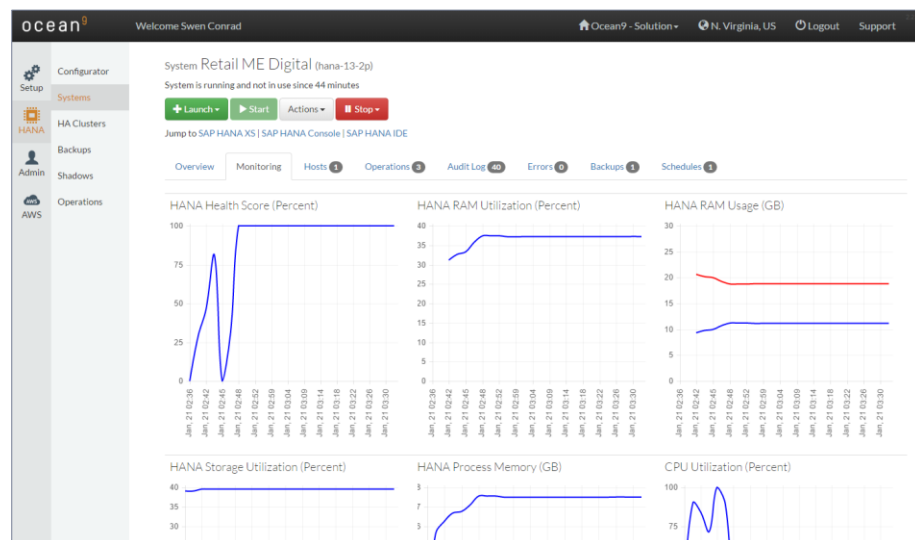


**Figure 2:**          Monitoring a running SAP HANA System with Ocean9

You share your screen, go to Ocean9.io, and in 20 minutes you have a fully functional SAP HANA system running live on AWS. Your boss is quickly convinced – but what can he do about it? The transformation initiative is on hold, after all. This is when you make a pitch that puts the Bee Sitters on the map for years to come.

## More than BCDR

"If digital transformation is a budget issue," you say, "moving to the cloud will turn a big capital outlay into a monthly operating expense – which can help ease the burden."

"True enough," your boss agrees. "But I am sure SAP HANA in the cloud and Ocean9 are not cheap!"

"For this proof of concept," you counter, "we've incurred about $50 in cloud resources. And in a live system, the cost transparency is amazing – which will allow us to know exactly where we stand with infrastructure cost almost down to the minute."

"But moving to the cloud isn't just about saving money," you argue. "It's about being able to run our business in real-time – all the time. It's about having the flexibility to respond to what customers want – before we lose them. And it's about our future competitiveness: if we don't get comfortable with the cloud now – and all the advantages it can give us – we'll be left behind by more nimble competitors who can just waltz in and take our business away."

"Also, if we're really serious about better outcomes, positive customer experiences, and the ability to deliver tailor-made offers in the moment," you continue, "then we'll need real-time Big Data insight from social media and other points of customer contact like smart stores – all processed and analyzed instantaneously. Doing any of this without the cloud will be an exercise in futility. For our company, in other words, the cloud is a strategic imperative."

Your boss sighs heavily and shuffles uncomfortably in his chair. "Let me get this clear. You want to propose that the entire company moves to the cloud with Ocean9 and public cloud?"

"No," you say. "I want you to propose it. It'll be good for the Bee Sitters – and good for the company as a whole. And the best way to convince the upper-ups is to show this proof of concept. The rest speaks for itself."

## Boss comes through

Effective as ever at navigating the ins and outs of the corporate culture, your boss helps to get the digital transformation initiative back on track. After a few meetings, internal demos, and reviews – as well as some back-room maneuvers – senior management is intrigued by the capabilities of clouds like Azure and AWS combined with the intelligent architecture and automation provided by Ocean9. But management is cautious. Yes, they can see BCDR running in the cloud, but – even though they don't say why – they tell your boss that they're still leaning toward the familiar on-premise scenario for the company's SAP HANA production environment.

OK. Message received.

Your boss's next move is to have Ocean9 in for a day of discussions – inviting everybody including your SAP system integrator. The Ocean9 team conducts a workshop to talk through your BCDR project and goals. Discussion topics include cloud security best practices, high availability

architectures, hybrid scenarios, and a review of the differentiation between AWS and Azure. Per your request, special attention is given to hybrid scenarios with a production SAP HANA system on premise and BCDR in the cloud. By the end of the day, workshop attendees are provisioning and managing their own SAP HANA systems in the cloud – and can easily connect to the SAP HANA Cockpit for administration and monitoring.

## The next day at the water cooler

The next day, as you finish up your green jello in the cafeteria, you overhear Ram with the DigTrans team speaking with Monica from the SAP team: "And we'd have full access to HANA in far less time with all the security and all the control we'd need," Monica says. "And much more flexibility to evolve. It seems like a no-brainer."

You cause a commotion when you fall out of your chair. As Ram gives you a hand up, you say, "If you're talking about the production system, I concur." This is when Monica proposes that the three of you showcase the BCDR deployment as a model for the live production system. It's almost as if you planned it this way.

## Preparing for the final pitch

Throughout your ramp-up, you talk to anybody who'll listen about the BCDR cloud approach – which gives your company experience with an important new deployment model that points the way forward to new possibilities in a digital economy. In a live production scenario, you argue, one of the biggest benefits would be the ability to right-size the infra-structure according to seasonal requirements. Rather than budgeting for computer capacity in 5-year cycles – only to have much of that capacity sit dormant during off-peak times of the year – a cloud approach would allow your company to meet demand almost in real time. This would enable you to reduce compute resource waste and optimize IT operations.

Gradually, it becomes apparent to the upper-ups that yes, maybe cloud deployment for the company's live production system might be the way to go. On the grounds of cost savings, flexibility, and competitiveness, they start to consider the cloud scenario. The biggest obstacle, however, is the risk management group – which insists on robust security. Echoing what you said weeks before, your boss argues that cloud deployment can actually deliver higher levels of security at lower costs.

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Based on the company's experience thus far with SAP HANA deployed via Ocean9 on the public cloud (AWS/Azure) for BCDR purposes, the risk team signs off and the cloud approach moves forward. Again, it's almost as if you've planned it this way – but you have to admit, your boss played a good game, too.

## The Internet of Things

Your cloud advocacy pays off. Once an important but admittedly back-office function within IT, the Bee Sitters are sought after when it comes to charting new directions for the company. In the cafeteria, a woman from marketing asks you to address her group about personalizing shopping experiences using big data analysis, geolocation data, and social media monitoring. Your boss, meanwhile, takes a series of meetings on real-time inventory tracking with smart shelf technology. Eventually, you can see the outlines of an Internet of Things (IoT) strategy emerging for your company – made possible in part by virtually unlimited cloud resources made available through Ocean9 from providers such as AWS and Azure.

All of this will put significant demands on IT, requiring greater flexibility when it comes to deploying new solutions, collaborating with manu-facturers and other technology partners, and connecting with customers in new and dynamic ways. This is good, of course, because it means that your company is aligned with emerging market trends. And now you, your boss, and the Bee Sitters as a group are sitting in the center of it all. Not a bad a day at the office. This is when you ask your boss out for a local harvest microbrew with a hint of pumpkin – which, you decide, may not be so bad after all.

### References

[1] Disaster Recovery as a Cloud Service: Economic Benefits and Deployment Challenges. Timothy Wood, Emmanuel Cecchet, K. K. Ramakrishnan, Prashant Shenoy, Jacobus Van der Merwe. Workshop on Hot Topics in Cloud Computing (HotCloud), 2009

[2] Cloud and the digital imperative. Alex Hilton. Cloud Industry Forum, 2016

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