

# TomTom Speeds Time-to-Market While Driving Out Costs with a Private Cloud

*The world's leading in-car navigation provider accelerates development cycles, increases business agility and simplifies IT with Apache CloudStack.*

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*-Ian Hammond  
Senior Vice President of Technology  
Operations, TomTom*

Founded in 1991, TomTom is a leading provider of navigation and location-based products and services.

TomTom maps, traffic information and navigation technology power automotive in-dash systems, mobile devices, web based applications and government and business solutions. TomTom also designs and manufactures its own location-based products including portable navigation devices and fleet management solutions, as well as GPS-enabled sports watches.

Headquartered in Amsterdam, TomTom has 3,500 employees worldwide and sells its products in over 35 countries.

## Key Solution Benefits

- Creates complex development environments in days instead of months
- Quickly extends cloud infrastructure to new datacenters overseas
- Reduces the cost of service delivery through improved IT efficiency

## The business situation: Providing more agile support for the business

A pioneer of navigation and location-based products and services, TomTom has grown quickly through a consistent focus on meaningful innovation. Over time, the company's environment has grown to many datacenters worldwide, “As a group, our biggest challenge was moving our technology organization toward a more unified, consistent service platform, as well as becoming more dynamic,” says Ian Hammond, senior vice president of the company's technology operations group, which is responsible for the back-end systems and platforms used in service delivery and new product development.

To keep pace with fast-moving consumer and business technology platforms, TomTom's development teams need to be able to create more diverse environments, more quickly. Hammond's group began an initiative to provide these teams with Infrastructure-as-a-Service (IaaS) through a private cloud which would help them guarantee security, data integrity and resiliency more effectively than a public cloud.

What began as a project on testing and developing with Apache CloudStack quickly turned into something substantial. To date, TomTom has created a multi-datacenter cloud using Apache CloudStack that comprises more than 150 physical servers and multiple CloudStack zones that has standardized on KVM.

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## The solution: delivering IaaS through an Apache CloudStack-powered private cloud

In early 2012, the company made the decision to build out a private cloud using Apache CloudStack, the industry's leading open source cloud infrastructure technology. "It was important for our platform to be vendor-agnostic," says Hammond. We had one development group using XenServer and another using VMware. Currently, we've standardized on KVM with CloudStack, but it's good to know that with CloudPlatform, we have a platform that can interface with all three.

## Key benefit: accelerating time-to-market through more agile development

"CloudStack adds tremendous business value because it means we can do things so much faster and be more flexible," says Hammond. "If developers suddenly have a great idea that they want to test, we can more quickly give them the environments they need, including all the required interdependencies, which can be complex. Previously, that might have taken months; now we can deploy entire platforms in a few days." Developers are also gaining the ability to handle their own deployments of existing company services, such as traffic generation systems and profile databases, within the test environments for next-generation service platforms. This capability reduces the time and work required from technology operations engineers.

## Key benefit: reducing the cost of service delivery

“In addition to increasing the speed at which we can deploy new services, one of the main reasons for our CloudStack deployment is to reduce the cost of delivering our services,” says Hammond. As a shared service group, Hammond’s team will also use its IaaS platform to enable cost accounting for the internal product units that consume its IT services.

## Technical Situation

The production and customer facing machines are hosted on CloudStack. However, the cloud itself is a private internal cloud and not accessible by third parties to create their infrastructure. Currently, CloudStack is being deployed on two data centers with two zones per data center, tallying up to four zones total. Why two zones per data center? The goal was to introduce the concept of Availability Zones. CloudStack will be expanded onto other data centers this year. But since it will take some time for all the data centers to run CloudStack, an intermediate step was taken by building the first data center as if it were two, giving the flexibility to take one zone down to perform maintenance when needed.

TomTom currently uses the hypervisor type: KVM (hosted on RHEL6.2) managed by CloudStack. Other hypervisor technologies like XenServer and VMWare are being used by TomTom as well but these were built long before CloudStack was implemented which is one of the main reasons they are not being managed by CloudStack today. Today, there are around 150 hypervisors that have been added to CloudStack.

## Looking ahead

As it drives continued innovation in personal navigation, TomTom also participates actively in enhancing the open source technologies that support its business. “We’re working to integrate CloudStack more closely with our authentication and authorization systems, and we’d like to contribute that work back to the Apache CloudStack community because we believe in open source,” says Hammond.

To learn more about Apache CloudStack, please visit <http://cloudstack.apache.org>.

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