Communiqués de presse

Made in IBM Labs : Gérer de façon dynamique la bande passante du réseau dans un Cloud

Supprimer les principaux goulots d'étranglement de performance, pierre angulaire de Software Defined Networks

Paris, France - 11 oct. 2013: Les chercheurs d'IBM ont développé Dynamically Provisioning Virtual Machines (DPVM), une méthode pour gérer de façon dynamique la bande passante du réseau au sein d'un Cloud, ce qui conduira à des améliorations significatives en termes de performance, d'efficacité et d'économie générales du système.
Cette invention liée au Cloud Computing pour laquelle IBM a reçu le brevet #8,352,953 porte sur le provisionnement automatique de machine virtuelle en fonction de la disponibilité réseau. Elle est idéale pour des systèmes Cloud exploitants des applications ayant des pics et des creux massifs aléatoires de demande de services.

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Made in IBM Labs: Dynamically Managing Network Bandwidth in a Cloud

Removes Major Performance Bottleneck; Cornerstone For Software Defined Networks

Armonk, N.Y. - 10 Oct 2013: IBM (NYSE: IBM) inventors have developed a method for dynamically managing network bandwidth within a cloud, which could lead to significant improvements in overall system performance, efficiency and economy.
The cloud computing invention -- for which IBM received U.S. Patent #8,352,953: Dynamically Provisioning Virtual Machines -- provides a method for automatically deciding the best way for users to access a cloud computing system based on availability of network bandwidth.

This invention is ideal for applications such as online systems running within a cloud that experience dramatic or unexpected peaks and valleys in demand for services, such as:

- Online retailers and auction sites that endure spikes in activity at different times of the day, various days of the week, and during holiday seasons and special promotions;
- Search engines, which must respond to surges in activity on a multitude of topics at any time, driven by popular culture and current events;
- Government and news media Web sites, where local, regional, national and international developments and crises ranging from elections, to conflicts, to natural disasters can drive traffic without warning; and
- Online sites for major sporting events that encounter unpredictable demand from fans for stats, videos and other content during live competition.

"This is the type of investment in invention and innovation that is needed to be a leader in the competitive cloud computing market," said Dennis Quan, vice president of strategy, IBM cloud services. "IBM inventors are

focused on researching and developing new cloud computing technologies and techniques that will pave the way to leadership for IBM and its clients."

Dynamic Cloud Network Bandwidth

In a typical cloud computing environment, each user is given access to a virtual machine that delivers a host operating system and physical resources such as processor and memory to support the user's application requirements. To accommodate numerous users, multiple VMs are assigned within the cloud and as demands for system resources increase and multiply, applications can become constrained by limits on networking bandwidth. This IBM invention allows the system to automatically and dynamically reassign work from one system node to another based on networking bandwidth requirements and availability, ensuring that the system and VMs can run efficiently.

While there are many approaches to enabling virtualization in a cloud, most focus on the issues of CPU and memory utilization and optimization. But even if those functions are managed effectively, overall system performance can be impeded by restricted network bandwidth. By focusing on the networking aspect of system optimization and virtualization, this invention removes a roadblock to overall system efficiency, allowing processing, memory and networking all to work at optimal levels.

"Today's consumers using all kinds of devices expect their apps and Web experience to always work -- they have zero tolerance for network bandwidth bottlenecks," said Ed Suffern, IBM systems engineer and the lead inventor on the patent. "IBM's patented dynamic provisioning invention will help cloud service providers increase network performance and improve customer satisfaction."

Foundation for Software Defined Networking

Dynamic provisioning of network bandwidth across a cloud computing system provides the foundation for Software Defined Networking, which is defined as requiring dynamic management of network resources through automated programs.

The invention calls for network resource management to be completed using software to obtain data from the management information database of the network switch to determine the amount of bandwidth being used by each IP address assigned to each VM within the compute node. As network bandwidth rises and becomes constrained in one node, the system will automatically reassign some of the VMs to another node with network bandwidth capacity available.
This invention can be applied run various operating systems, including Linux, Windows, CentOS, and UNIX, and a variety of hardware platforms, including IBM System x racks and BladeCenter, PureFlex, and Power Systems.

More information about IBM's invention and patent leadership is available at this link. For more information about IBM Systems, go here.
