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●UCLA、シスコ等が新たなネットワーク・アーキテクチャ推進するコンソーシアム結成

【GigaOM, 2014/09/04】

UCLA、ミシガン大学、シスコ、ベリサイン等が、TCP/IP を不要とする新しいタイプのインターネット・アーキテクチャ「Named Data Networking (NDN)」を推進する「ネームド・データ・ネットワーキング・コンソーシアム」を結成。今月3、4日に初会合を開き、NDNの現状や今後の可能性について討議した。

現在のネットワークはIPアドレスを基にデータを転送する形式を取っているが、NDNの特徴はデータ転送にIPアドレスが不要である点。ユーザーは「インタレスト・パケット」と呼ばれるデータリクエストを発信。このパケットはルータ上の「ペンディング・インタレスト・テーブル」に保管され、ルータはこれを基に、ユーザーが求める内容に沿った適切なデータをネット上やネットに接続されたデバイス上で探す。

データ・パケットに含まれるデータには一意の名前が付けられているため、ルータはデータが保管されている可能性のある場所を全て網羅でき、そのデータを直接、ユーザーに送り返すことが可能。

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コンソーシアムでは、NDNによりネットワークのセキュリティを強化するとともに、今後予想される帯域への需要拡大にも対応でき、さらにより複雑なアプリケーションの開発も容易になるとしている。

(参考) 本件報道資料

With Named Data Networking, a group of researchers promise a future without servers and IP addresses

By Jonathan Vanian

Summary:

Researchers from UCLA, Cisco Systems, Verisign and others have formed a group that advocates for new type of networking model that they believe can handle large amounts of bandwidth and remove the need for servers.

A team of researchers from universities and big tech companies have united to advance and popularize the concept of Named Data Networking (NDN), which calls for a new type of internet architecture that does away with the standard Transmission Control Protocol/Internet Protocol that's currently used to distribute information over the web.

The Named Data Networking Consortium — whose members include team leader University of California, Los Angeles (UCLA), University of Michigan, Cisco Systems, Verisign and others — held the first of its series of meetings on Wednesday and Thursday of this week in which they discussed the current state of NDN and its potential to improve scientific research.

Earlier this summer, Gigaom's Stacey Higginbotham detailed how NDN fits into the future of the internet and how the emerging technology could take advantage of the connected world. In its simplest form, today's era of networking involves servers that transmit data to recipients based on their device's IP addresses. What makes NDN interesting is that it would eliminate the need of servers and IP addresses in order to funnel data between users.

With Named Data Networking, a user will be able to send out a request for information called an interest packet that the router can store in what's known as a pending interest table; basically, a holding ground for all requests. From there, the router can scour the web and the multiple devices connected to it to find the appropriate data that the user wants. Because the data is stored in a data packet that contains a unique name, the router can intelligently locate all instances where the data may be hosted and stream that data directly to the user in bits and pieces. The idea is similar to how the peer-to-peer file sharing company BitTorrent functions in that if you wanted to download a movie, for example, you would do so by connecting directly to other users who transmit fragments of the movie to your own device.

How NDN works

How NDN works

The Named Data Networking Consortium believes that while the underlying way the internet currently functions is capable of supporting the myriad connected devices and transmission of data to those devices, the NDN model of

networking is much more appropriate for the future; this model could potentially lead to better network security, a better way to meet the increasing need bandwidth and can perhaps make it easier to develop complex applications.

The NDN project is supported by the National Science Foundation and has received over \$13.5 million in funding since 2010.

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