

The Law of the Pack

by David P. Reed



Harvard Business Review

Reprint F0102C

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The Law of the Pack

Move over, Metcalfe. Here's a new technique for measuring the value of networks.

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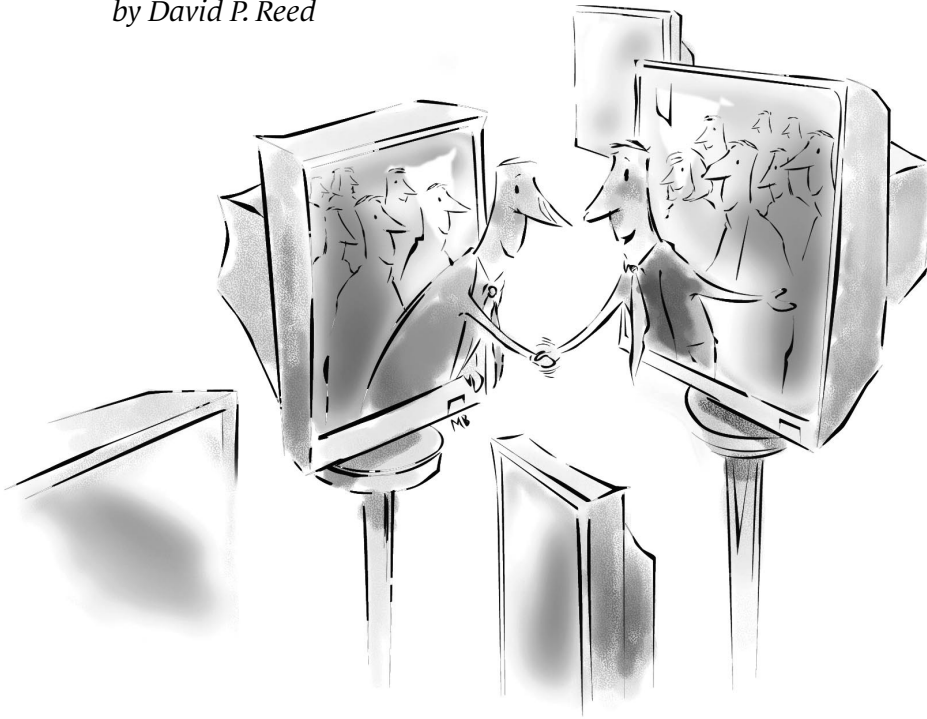


ILLUSTRATION BY MICHELLE BARBERA

The Internet is a network of networks, and its value lies in the connections it enables. As managers and entrepreneurs try to measure that value, they have paid a great deal of attention to two types of networks. The simplest is the one-to-many – or broadcast – network, through which a central supplier broadcasts information to a large number of users. An example is the Web portal, which delivers news and other content to many visitors. More complex, and more valuable, is the one-to-one – or transactional – network, which connects individual users with other individual users to exchange information or complete other transactions. Common examples are e-mail and instant messaging.

But there's a third type of network that, although less understood than the other two, is actually the most valuable of all. It's the many-to-many – or group-forming – network, which allows network members to form and maintain

communicating groups. Examples of group-forming networks, or GFNs, include on-line communities, business-to-business exchanges, and buyer cartels.

I've been studying GFNs for the last four years and have come to realize that they require a whole new way of measuring network value. Indeed, I think companies that can capitalize on the power of GFNs will gain the strongest competitive advantages that the Internet has to offer.

The ways to gauge the value of broadcast and transactional networks are fairly well established. As the number of users on a broadcast network rises, its value increases in a linear fashion. Every new member adds the same amount of value, no matter how large the network becomes. In a transactional network, value grows much faster. Because each new member increases the number of potential connections available to all other members, the value of each member keeps rising as the network expands. This relationship is captured in Metcalfe's Law, which states that the value

of a one-to-one network grows in proportion to the square of the number of users. If the number of network members equals n , in other words, the value of a one-to-many network grows in proportion to n while the value of a one-to-one network grows in proportion to n^2 .

But even Metcalfe's Law understates the value created by a group-forming

tomers. One thing it does is broadcast content like weather reports and news. Because content is served to one user at a time, it creates value proportional to the number of users on the network. Another AOL service is messaging, a one-to-one medium. According to Metcalfe's Law, the value of messaging grows proportionally to the square of

Companies capitalizing on group-forming networks will gain the strongest advantage the Internet has to offer.

network as it grows. Let's say you have a GFN with n members. If you add up all the potential two-person groups, three-person groups, and so on that those members could form, the number of possible groups equals 2^n . So the value of a GFN increases exponentially, in proportion to 2^n . I call that Reed's Law. And its implications are profound.

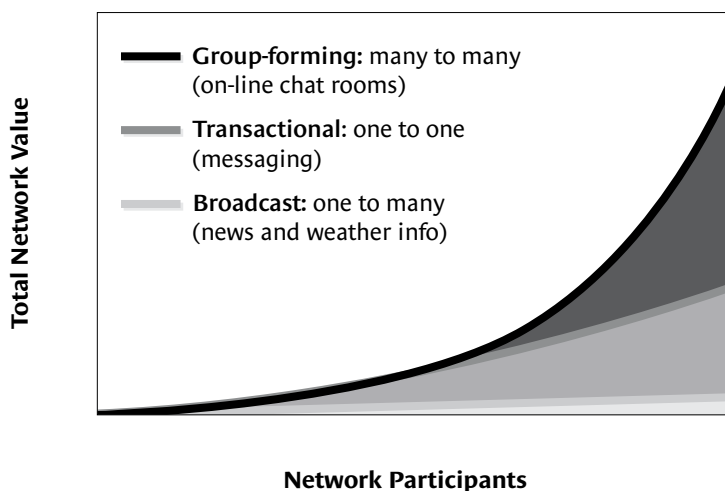
Consider a network-platform business like America Online. It provides a mix of network-based services to its cus-

tomers. Finally, AOL enables users to form groups through such mechanisms as chat rooms and multiplayer games. According to Reed's Law, the value of such GFNs grows exponentially. So these networks quickly come to dominate the overall value created by AOL (for an illustration, see the accompanying graph, "The Relative Value of AOL's Services"). Not surprisingly, as AOL's membership has expanded, a large share of users' attention has shifted away from accessing content and toward group-forming activities.

The most powerful application of Reed's Law may be in the business-to-business space. Exchanges and similar Net-based business networks can help customers band together to request customized products and services from suppliers, and they can help suppliers organize alliances to create new products and services. As these networks grow, the value they deliver to their member companies will greatly magnify, and the organizations or consortiums that operate them will gain ever greater market power. As Reed's Law would indicate, the most successful businesses on the Internet will travel in packs.

The Relative Value of AOL's Services

AOL offers its customers a mix of services. Some are broadcast services, relaying content such as news and weather reports from one source to many users. Others are one-to-one transactional services, such as e-mail. The most valuable of its offerings, though, are its group-forming services, such as chat rooms or multiplayer games, because they connect entire groups of users to other groups. As the number of AOL users grows, the value of those services to AOL members grows exponentially.



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Reprint FO102C

