

Free the edge

Eli Noam JULY 30 2007

Imagine an electric power utility that owns or controls all electric devices you plug in, from lamps to computers to TV sets and clock radios. They must either be rented from the utility or be on a short-list of approved devices. Laughable? Repressive? But that was the way electric companies operated in their early years.

A similar system also existed in telecoms. For nearly a century, the phone monopolist would select the devices that could be connected to the network. In America, AT&T even manufactured most of them and would only rent them out, not sell them. Connecting a phone made by another company was illegal. When this system was scrapped in 1968 AT&T predicted technological and human hazards. But instead, with the edge of the network freed from the monopolist's control, consumer and office technology flourished. The internet would not have happened under the old system.

It is useful to apply these lessons today to the two major emerging and converging parts of the information infrastructure - mobile wireless and cable television. In both cases, the edge devices that plug into the networks - the mobile cellular handset and the set-top box, respectively - are controlled by the network operators.

For sure, consumers can choose among mobile handsets. But the buyer of a pricy Apple iPhone, for example, cannot simply choose among service providers, even among those using the same technical standard. In America, the network operator, in a variety of ways, determines which handsets are approved, configured, and offered for its network; what content can be accessed easily from its opening menu; what software applications are loaded onto the handset; and what video channels can be viewed for the newly emerging mobile TV. In many other countries the previously easier transfer of mobile phones among carriers is increasingly impeded by the “locking” of the devices. As a result, consumers suffer and innovation lags behind. An example is the grudging pace at which mobile handsets are permitted to switch over to free WiFi connections. The [simple remedy](#) I suggested in 2001 was the [unimpeded interconnection](#) of devices as long as they meet technical specifications. With such equipment, users could move from one wireless system to any other one that offered access to whatever content or services they needed at the time.

It has been similar in cable TV. Here, too, the edge point of the network, the set-top box, could only be obtained from the cable company. In time, these boxes became complex electronic gateways into the home, and they are on the verge of linking consumer electronics devices, home office functions, climate control, and security. For over a decade the Federal Communications Commission in Washington has tried to pry open this market to competing equipment companies and service providers such as TiVo. After lengthy resistance by the industry, the FCC imposed a system in which cable companies (as well as telecoms companies offering video) had to offer consumers a special card that would activate the equipment provided by other vendors. This system has been in place only shortly, since July 1, and is still untested. But an unscientific inquiry to my own cable operator indicates that cablecards are offered under such unfavourable conditions and limitations as to make this an unrealistic option for the consumer.

The incentives for the various network operators are clear. Whether for regular phone, mobile, or cable, network operators seek technical end-to-end coordination, as well as economic control over the gateway to and from ‘their’ user. If users could freely pick the access device, many such devices would end up being platform-independent and able to select among various pathways. Users could then seek out whatever network worked best for them for a given application. This would [overcome segmental bottlenecks](#) of cable, wireline, and wireless. But for network providers, too, this system will have long term advantages. The increased usage generated by the innovations that this system would spawn will soon outweigh the impact of greater competitive pressure on them, just as it did earlier for telecom and electric networks. Their primary asset is the network, not control over the edge devices.

The importance of this goes beyond technology gizmos. The connectivity of devices also provides a remedy to the potential for content restriction by network operators. Such restrictions are fought over today, such as in the battle over “net neutrality” (roughly, open access by content and applications providers to distribution over the broadband internet.) To make detailed access regulation unnecessary it must be easy for users and content providers to move smoothly from one distribution network to another, and from one consumer electronics device to the next.

In the age of digital convergence, the separation of networks from each other through the control over their initial access points makes little technological or consumer sense.

Keeping others’ technical devices off the edge of a network retards innovation, increases prices, reduces usage, and limits content diversity. Just as it became an anachronism for electric and telecom networks, so it will be in time for cable and wireless.

Eli Noam is professor of finance and economics at Columbia University