

- a. *The packet-switching, non-linear architecture of the Internet environment.* One of the major constraints of the national and state security collective images is the very architecture of the Internet communications environment itself. As Froomkin notes, "The Internet is not a thing; it is the interconnection of many things--the (potential) interconnection between any of millions of computers located around the world." Each of these computers adheres to a common interconnection standard, known as TCP/IP. This standard enables the use of packet-switching, which is how information is transmitted through the Internet. In packet-switching, messages are broken up into discrete units, or "packets," that are then routed through the network and re-assembled once they reach their destination. With packet-switching technology and the distributed TCP/IP network, the data that comprise a single message take multiple independent routes to reach their destination. Hence the common description of the Internet as a "decentralized, anarchic network." The constraint that this architecture presents to the national and state security collective images is that as the network spreads and as communication flows become more dense and swift, the difficulties of filtering out or blocking particular types of information mounts. There are no single "choke-points" or nodes through which all information passes, for example. Nor is there any single route through which particular messages travel. Information is scrambled and distributed across numerous independent trajectories along the network.<sup>83</sup> Although it is possible for states to completely detach themselves from

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<sup>83</sup> A U.S. National Research Council report noted: "When an interceptor moves onto the lines that carry bulk traffic, isolating the bits associated with a particular communication of interest is itself quite difficult. A high-bandwidth line (e.g., a long-haul fiber-optic cable) typically carries hundreds or thousands of different communications; any given message may be broken into distinct packets and intermingled with