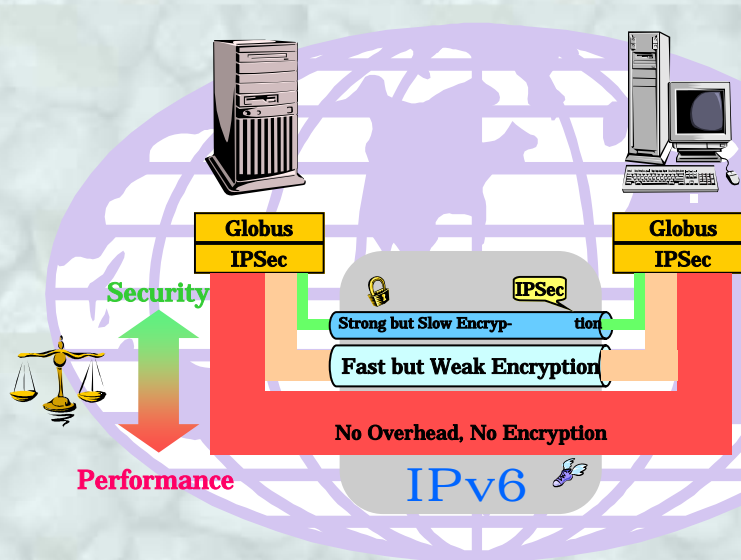


A Secure Grid Environment using IPsec on IPv6

Grid technology tends to be increasingly demanded in a variety of scientific area where enormous computational power is required for problem solving. Examples of such scientific areas include Medicine, Bioinformatics, and Drug design. On the other hand, in such areas, data confidentiality is becoming a serious problem for Grid computing. Scientists and researchers never want others to look at files, programs and so forth in use for their research. This trade-off demand between high-performance and data confidentiality is solved on our proposed secure Grid environment.



Solution to Global Computing

In these days the trend of Global computing such as Grid, peer-to-peer and ubiquitous is remarkably focused. It is easily predictable that the trend yields the exhaustion problem of IP address in the near future because a computer in the Internet is required to behave as a peer. For the reason we introduce IPv6 to our Grid environment. The final goal of our research is "everything on IPv6"!

Pursuit of ultimate demand

The recent development of measurement technologies allows us to obtain scientific data with high degree of resolution in both time and space. However, we cannot adequately analyze such data within realistic time.

Data confidentiality is also essential for modern science and business on the Internet.

We provide the new computational platform allowing people to balance such ultimate demand. To the end, Grid Security Infrastructure (GSI) and Internet Security Protocol (IPSec) is combined on IPv6 network.

Acknowledgements

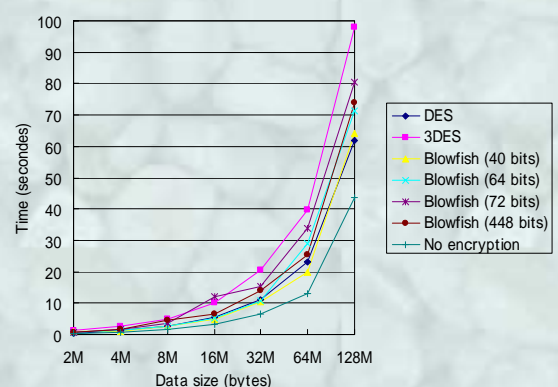
This work supported in part by Grant-in-Aid for Scientific Research on the Priority Area, "Informatics Studies for the Foundation of IT Evolution" (13224059) by the Ministry of Education, Culture, Sports, Science and technology of Japan, and the IT-program (construction of Supercomputer Network) of the Ministry of Education, Culture, Sports, Science and Technology.

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Data transfer time with MPICH-G2

For the measurement *system*, or the software shipped with *mpich* was used. The graph shows the communication overhead increases in response to the strength of algorithm for encryption/decryption.



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