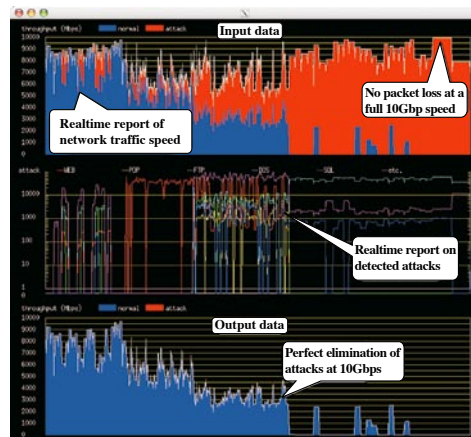


Intrusion protection system for large-scale networks

Network security is vital to the achievement of safety in modern society. Cyber attacks to the computer networks of companies, schools, and governments sometimes cause serious damage with service stoppage and /or information leak. “Snort” is commonly-used open software which accumulates rules to detect attacks, although processing speed is limited. We have developed high-speed hardware system where multiple pattern matching is performed in parallel by employing non-deterministic automaton, at the same time hardware compaction is achieved by sharing circuit elements all over the applied rules. Our system detects and eliminates attacks at the speed of 10 Gbps with 1,225 rules, setting a new world record. Since the circuit logic is automatically generated from the Snort rules by our developed program and is written to the FPGA (a logic programmable device) of the system, it is very easy to update the system against new kinds of attacks.



Report on cyber-attacks detected by the intrusion protection system.

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Development of a thin film for a mirror switchable between reflective and transparent states

The newly developed mirror with a Pd capped Mg-Ti alloy thin film can be switched between a metallic (mirror) state and a color-neutral transparent state. The switchable mirror window glass with a practical size of 60 cm × 70 cm coated by Pd/Mg-Ti thin film is successfully prepared and shows good optical switching using a gas containing hydrogen.



Large-size mirror switchable between reflective state (left) and transparent state (right).

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