

Proposal of the low cost seismometer network system

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In the IT strong-motion seismometer (Takano et al. 2004), we aimed at realizing "the earthquake disaster prevention information system which can be offered for grassroots organizing" at first. The development as the general-purpose seismometer network does not advance. One of these causes is that operative cost of the whole system including a network was not low conventionally. We regarded a method to build a seismometer network in a low price as VPS(virtual private server) using VPN(virtual private network) and began examination use.

<http://itk.seism.jp/>

We use WIN system as a telemeter system. It is a stable system and is used widely. However, the transfer method of the WIN system is weak to use it on the Internet. The VPN router to deal with it is expensive. We can cut the cost of this part by realizing VPN by usable free software. In the WIN system, X-Window is used in display basically and is difficult to approach other than some researchers. In the prototype IT strong-motion seismometer, we realized display via the Web using CGI and Java applet. Because support of the Java applet was broken off, we realized waveform display by the Web using a JavaScript.

We use VPS of the SAKURA Internet Inc. for a core server. Virtual machine with a fixed global IP address is offered in 685 yen / month. We use OpenVPN as VPN. We use RaspberryPi for other construction apparatuses. The global addresses are unnecessary for them. The seismometer can raise a low price by connecting ADXL355 of the MEMS acceleration sensor of Analog Devices, Inc. to RaspberryPi. Because WIN system is carried out on RaspberryPi, existing win output logger can do this network connection through RaspberryPi.

We continue examination use and will push forward development of the application that made use of this network in future.

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