

Fujitsu Launches World's First Train Simulation System with Variable-Speed Playback of High-Definition Video *-Offered as train operator training system via SaaS -*

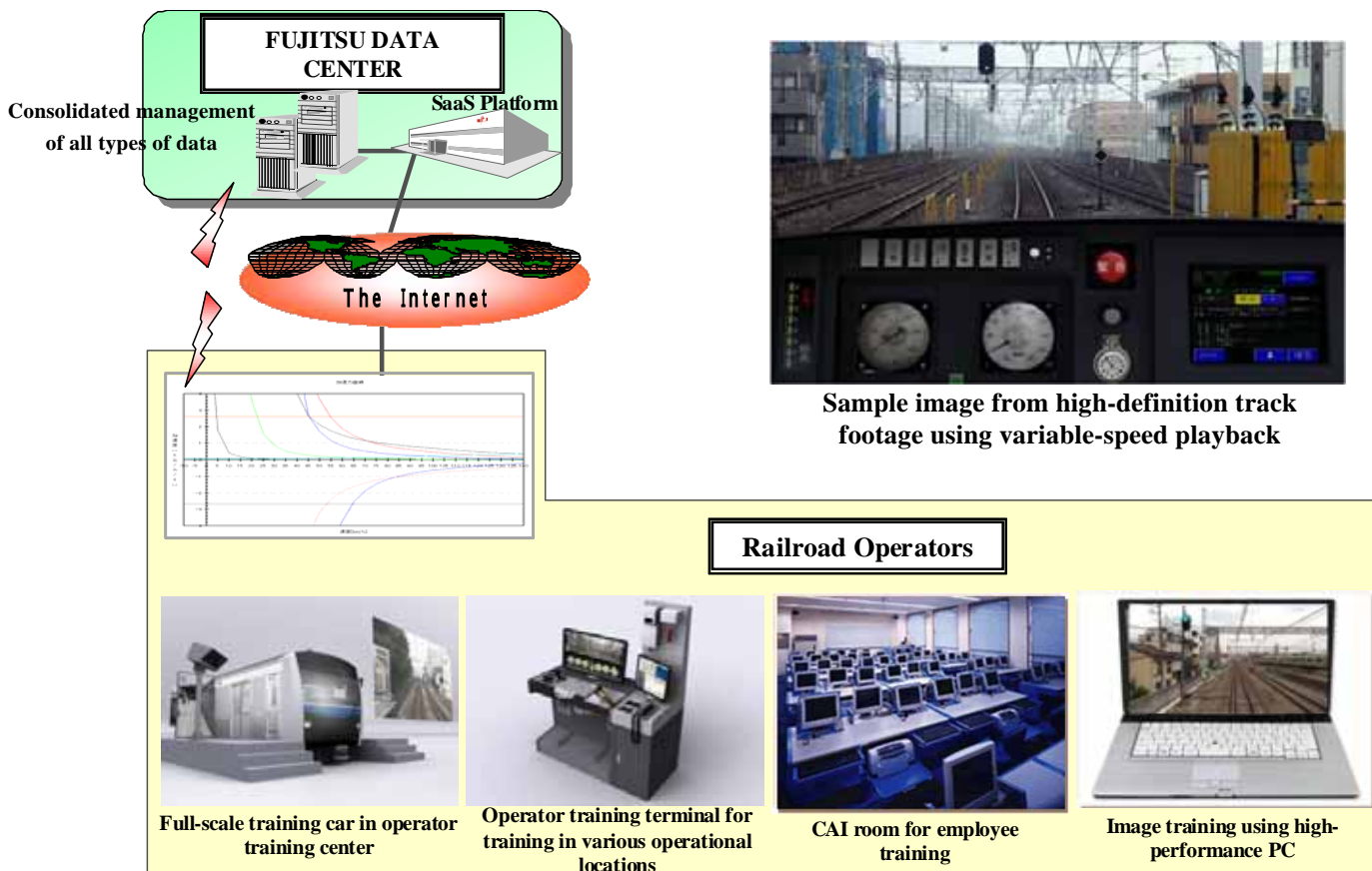
Tokyo, May 8, 2008 – Fujitsu Limited, building on technology developed in collaboration with Ongakukan Co., Ltd., has developed the world's first train simulation system using full high-definition video. The system is available on a commercial basis starting today.

Through its technical collaboration with video game and simulator developer Ongakukan, Fujitsu was able to develop variable-speed playback technology (*1) for high-definition video shot on actual train lines, the first use of this technology in a train simulator. The result is an unprecedented level of realism in train operation simulation, with accurate responses to the trainee-operator's input and high image quality even with variable-speed playback. This gives trainees a better approximation of the operational environment to help improve their skill levels.

The system is available via SaaS services utilizing Fujitsu Data Center infrastructure (*2).

Conventional simulators for train operators have relied on computer-generated graphics. The actual working environment for operators, however, is filled with signs, buildings, and other landmarks along the tracks, and there has been a need for train operation simulators that provide more realistic environments in order to raise operator skill levels.

This prompted Fujitsu, working with Ongakukan, to develop the technology for variable-speed playback of actual, high-definition footage of railway tracks, the first train simulation featuring this technology to be used in train-operator training materials. Since the system is offered via SaaS services, customers can use their PCs to update footage whenever they make changes to their track data. Moreover, the SaaS service allows training logs and results from remote locations to be batched together for integrated management. Fujitsu is considering making this simulator available not only to railway operators but also to train and transport museums, amusement and children's facilities.



Sample image from high-definition track footage using variable-speed playback

[Product Features]

1. Variable-speed playback of full high-definition video of actual railways

- (1) This system uses previously shot video of actual railways, and can play the footage back at 60 fps, regardless of the running speed of the simulated training, in full high-definition for excellent picture quality. The advanced playback technology works across a range of speeds—low, medium, and high—and responds accurately to operator inputs, including notch and braking operations while maintaining a high-quality picture.
- (2) Parameters such as position and grade information are embedded in actual train route footage, and the system models all the forces that affect a train’s operation, including grade, curves, mechanical resistance from the rails, and even aerodynamic resistance for bullet trains, resulting in a highly realistic training environment.
- (3) Compared to existing simulators based on computer graphics, the system creates a more realistic training experience, enabling operators to improve training results.

2. Available through SaaS for remote management and consistent levels of quality

(1) Linked with a Fujitsu Data Center and offered via SaaS, the training system enables delivery of updates on changed route sections as well as integrated logging and tracking of results for all trainees. In addition, the system can be used for training any time, any place, including in operator training centers, at bases for various types of trains, in various operation zones, in computer-assisted instruction classrooms, and in operator crew rooms.

(2) Because the system is provided over the Internet, it can offer training at a uniform level of quality to railway operators no matter where they work, something that would be difficult for conventional standalone training systems.

Furthermore, it is planned that trainee log and results data will be linked with the “e-learning” service offered by Fujitsu, for integrated management of all train crew training systems.

(3) Using full-scale mockups of trains with up to six video displays fore and aft, left and right, the train operator and conductor can together perform safety checks from station arrival to departure, practice door opening and closing procedures, all in real time.



Full-scale training car with six video displays

3. Training for emergencies and other special situations

- (1) The system can accommodate any kind of accident or other scenario, providing practice in responding to various unexpected situations.
- (2) The system uses a sophisticated mix of video and computer graphics as well as detailed, lifelike soundtracks to represent displays on the operator’s dashboard, color changes in signaling equipment, cars driving over railway crossings and emergency stoppages or power outages due to earthquakes.

[Pricing & Availability]

System Name	Price (excluding tax)	Availability
Train Simulation System	30 million yen and up (estimates provided per order)	Immediate

[Sales Target]

100 systems over next three years; 5 billion yen

[Recommended Equipment]

The following specifications are recommended:

CPU: Intel® Core™ 2 Duo processor, 2.40 GHz or higher

Memory: 2 GB or higher

Hard drive: 100 GB free capacity

OS: Windows Vista® or Windows® XP

[Glossary]

(*1) Variable-speed playback technology: Technology that can vary playback speed without changing the frame rate during playback.

(*2) SaaS: Software as a Service. A method of delivering applications as a service over the Internet.

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