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Preferential Subject N° - PS3

Development of Next-generation System Stabilizing Controller Communication System

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1 Introduction

At the present time, Kyushu Electric Power Company has divided the 500 kV system in Kyushu into four areas and implemented SSC systems for each. Since SSC server capabilities have been improved, our company is planning to integrate these four systems into a single next-generation SSC system.

For this purpose, the following information need to be securely transmitted, even under system operating conditions that will become more complicated due to concentrated SSCs and the introduction of distributed power sources such as renewable energy.

- (1) power supply information
- (2) fault information
- (3) trip information

To deal with this, we have conducted studies on the development of a reliable, low-cost communication system that combines two types of transmission methods capable of satisfying the communication requirements of the above three types of information.

2 Next-generation SSC Communication System

The update summary of the next-generation SSC communication system is shown in Fig. 1 below. Among these (1), (2), (3) information, (1) power supply information was transmitted to the computing servers via the micro radio. In the Next-generation system, power supply information is transmitted by the existing IP network for electric power systems (power supply information network for SSC). In the case of this change, we confirmed the IP network to meets the line quality for (1) power supply information.

It is necessary to extend the microwave radio lines which became independent in every four areas to the location where new computing servers are installed, if SSC communication system is updated same as before. So use of the existing IP network for (1) power supply information enables a considerable reduction of costs arising from rerouting of the lines. However, since the IP network has not meet the requirement of delay as the present time, (2) fault and (3) trip information is transmitted by micro radio as usual.



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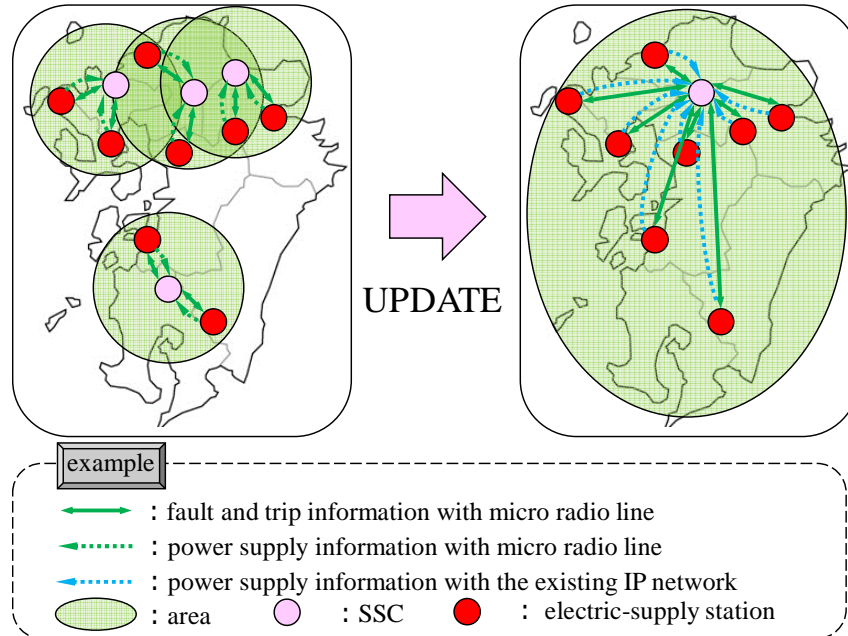


Fig. 1: The update summary

3 Conclusion

The SSC system is also essential to ensure stable power supply. For this reason, lines used to transmit information must also ensure an extremely high level of reliability. We have proposed a communication system capable of contributing significantly to cost reductions while keeping the high level of reliability. In the future, we will construct the next-generation SSC communication system by following appropriate migration steps through thorough evaluations.