三门核电有限公司
Sanmen Nuclear Power Co.,Ltd.

Challenges of I&C Commissioning to First AP1000 Unit

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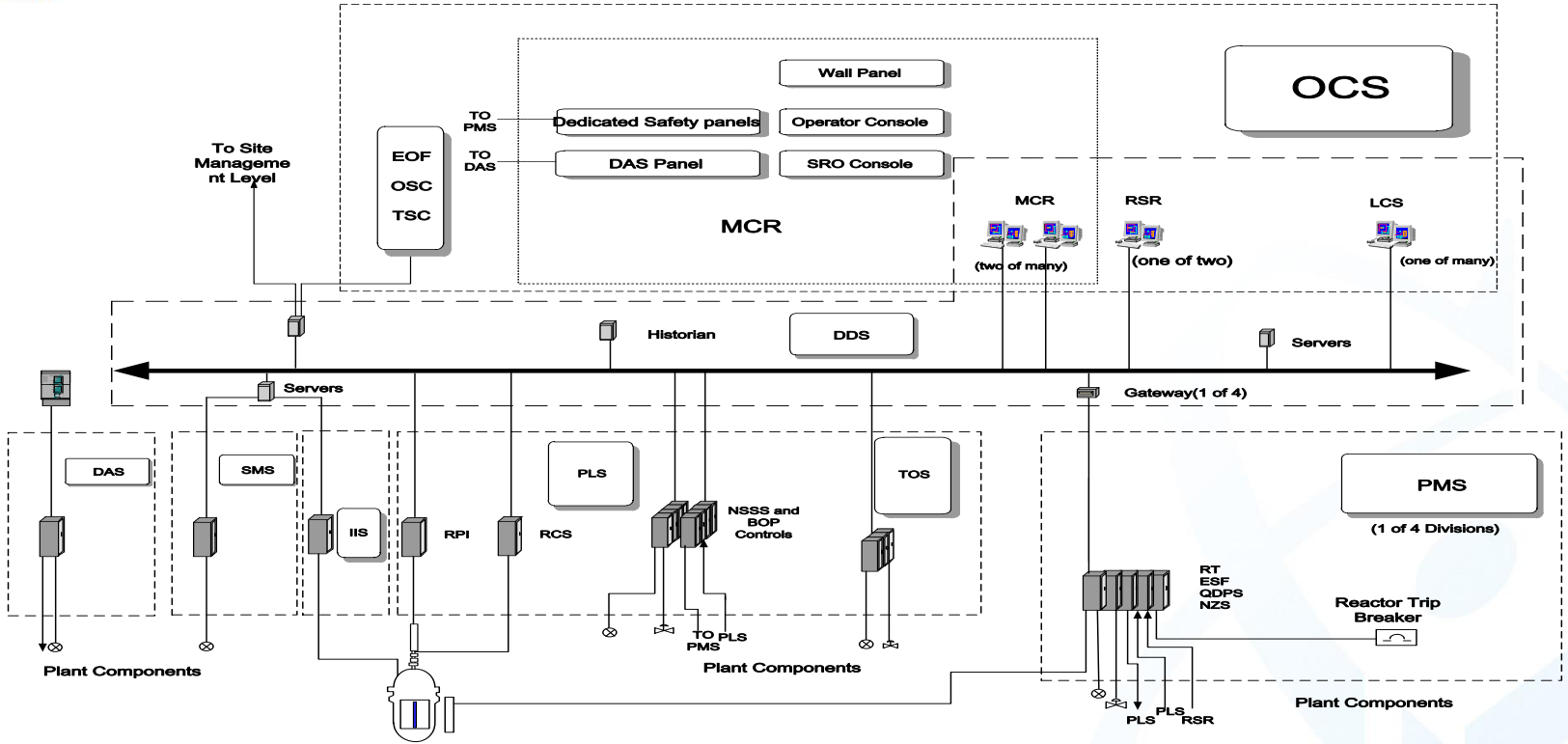
I&C System Architecture



AP1000 I&C System Conceptual Architecture

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Challenges of Design Changes

- Due to the delay of design finalization and deficiencies found by site commissioning, Sanmen Unit1 PMS experienced 3 times of baseline update.
  - Re-performing of commissioning test.
  - Regression test.
  - Increase work load.
  - Delay commissioning schedule.

Challenges of Test

- New Test Procedures:
  - Dry run: verify executability.
  - Revision: due to design change.
- New Test Method:
  - Once changed, need to change procedure accordingly.
  - Need support from supplier.

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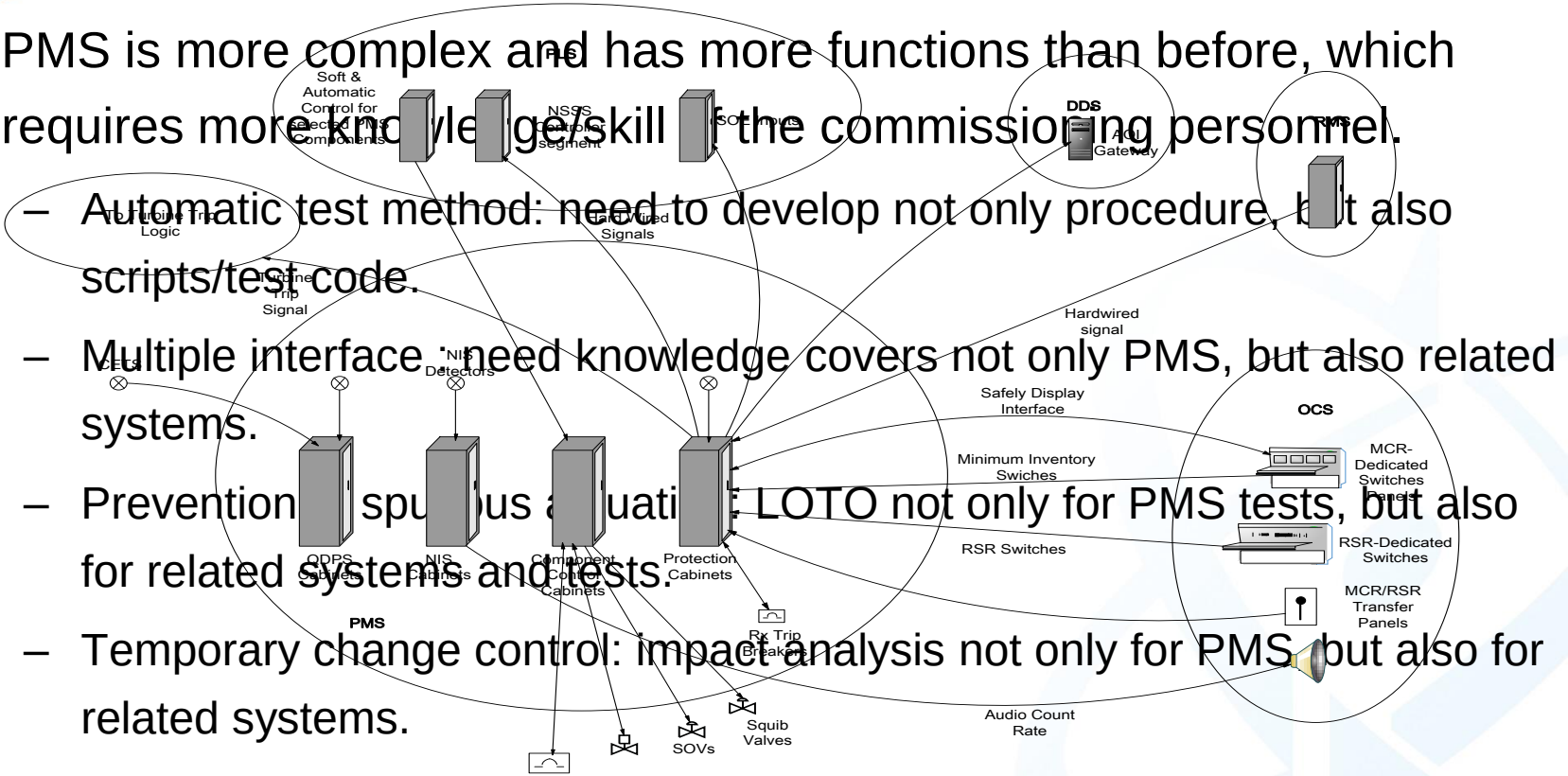
Challenges of Knowledge/Skill

- PMS is more complex and has more functions than before, which requires more knowledge/skill of the commissioning personnel.
  - Automatic test method: need to develop not only procedure, but also scripts/test code.
  - Multiple interface : need knowledge covers not only PMS, but also related systems.
  - Prevention of spurious actuation: LOTO not only for PMS tests, but also for related systems and tests.
  - Temporary change control: impact analysis not only for PMS, but also for related systems.



Challenges of Environment Control

- Digital I&C system requires better environmental control: Temperature, Humidity, Dust.
  - Installation prerequisites: room condition properly maintained.
  - Temporary AC and dehumidifier: use as necessary.
  - Structure/HVAC design change: make room condition poor.

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Site View

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Thanks