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A standards-based service oriented architecture design for substation fault detection

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ABSTRACT

Reliability and security in power supply is a measure of how well a
a consumer at a given point in time. Achieving high levels of reliability requir
expending huge sums of money. Power systems therefore required to operate at optimal capacity in
return on capital investment to attain a high level of reliability is, the
there is a need to improve the management processes in power systems and address their
of failure to protect components connected to the grid. Most of the aging and
traditional infrastructure which has not upgraded to support consumers is unable to
requirements. To ensure the continued growth and refresh of grid
committees have established standards and guidelines that chal
substation systems architecture. Reference process architectures
information exchange standards for utility automation have been developed by vendors over
last decade. A growth in the number of industry participants that have
for system integration and interoperability is high and will continue. This
demand and applicability to emerging systems are investigated. The approa
architecture considered in this dissertation is based on standards, design patterns
emerging framework for web service based fault detection application in order to deliver
the fault detection concept is achieved by a set of UML representations of the detection
requirements. UML is for model driven design in software engine
proposes design profiles of software components that are flexible, ext
detection information to support reliability protection system. A deployment model
implements the final application by indicating the placement of specific co
reference architecture used in this dissertation.

The aim of this dissertation is to provide an application for fault detection in su
modular, reusable and flexible in design by using existing soft
architecture design principles.

Keywords: TM Forum NGOSS, IEC 61850, COMTRADE, Service Oriented Architecture, Fault
Detection