12TH ICCRTS

“Adapting C2 to the 21st Century”
Creating a Network-Centric Danish Army using a Service-Oriented Strategy:
Dealing with Graceful Degradation of Services
Track(s): Network-Centric Experimentation and Applications, C2 Technologies
and Systems, or Networks and Networking
Name of Author: Henrik Kjær
Point of Contact: Henrik Kjær
Systematic Software Engineering A/S
Søren Frichs Vej 39
DK-8000 Århus C
Denmark
+45 89 43 20 00
hek@systematic.dk

Please note: We are only in the middle of the current step of the project, and we expect a
demonstrator to be ready in 2nd half of 2007.
Creating a Network-Centric Danish Army using a Service-Oriented Strategy: 
Dealing with Graceful Degradation of Services

Abstract: The first steps towards a Network-Centric Danish Army Enterprise using a Service-
Oriented strategy are taken in the most challenging of environments: Highly mobile units 
stationed in countries with extreme conditions such as flat or mountainous terrain, 
sandstorms, extremes of temperature, and so on. In an effort to create a Network-Centric 
Demonstrator scheduled for later deployment, the Danish Army has decided to tackle these 
challenges jointly with actors from the Defence industry. In addition to dealing with the 
challenges of creating a secure IP network on variable technology, the demonstrator will also 
show how to enable Services from existing systems and handle graceful degradation of 
Services, depending on availability. Availability can be affected by change of bandwidth, 
Services being out of reach, vehicles being overtaken by enemy, and such like. This paper first 
shows how to create a Service-Oriented Infrastructure for a truly distributed environment, 
built on a flexible network setup between highly mobile units using different underlying 
technologies for communication, such as HF, Wi-Fi, and others. Secondly, it presents a 
strategy for dealing with the graceful degradation of Services, for example how to handle 
changes in the availability of Services while managing to maintain a powerful solution.