

Annex B – NETN SURVEY: BACKGROUND AND INTRODUCTION

NC3A conducted an ACT-sponsored survey as part of the NETN Experiment in November 2010. The aim of the survey was to provide an assessment of the effort needed to establish and operate the NETN capability. Although the number of responses to the survey was limited, they were sufficient to develop initial recommendations. However, the number of responses was too limited to be able to present a full picture.

B.1 OBSERVATIONS

- 1) Due to the limited number of valid responses, we couldn't establish a baseline on the overall effort needed to prepare and execute a distributed training event based on NETN. However it seems that the effort is moderate and comparable to other federations that are applied in most nations and NATO organizations.
- 2) Due to the limited extent of the vignettes and technical focus of the experiment, the teams at all sites were small. Therefore there was no need for a formalized approach to distributed coordination of the experiment preparation and execution. A simple combination of tools like VoIP and phone was used.
- 3) Although focused technical compliance testing was clearly defined and well supported by tools, it was not sufficient to prevent undesirable side effects during execution of the various vignettes.

B.2 CONCLUSIONS

The table below summarizes the Analysis Objectives and the answers that were provided by Survey respondents.

<i>Analysis objectives</i>
AO2.1: To which extent is it feasible to establish and operate a secure, permanently available (it is there and tested but not necessarily running) training infrastructure between NATO and national training centres that can be used on demand using CFBLNet?
Answer: It is feasible to establish and operate a permanently available training infrastructure between NATO and national training centres using CFBLNet. CFBLNet services are available on-demand, require low effort to establish and operate, and provide good quality of service. The security aspect has not been experimented with, but CFBLNet has a proven track record in providing secure services.
AO2.2: To which extent were alternatives to CFBLNet considered?
Answer: Internet was considered and used as an alternative to CFBLNet. However, making the Internet connection secure would be much more difficult than in case of CFBLNet.
AO2.3: To which extent could alternatives to CFBLNet be considered?
Answer: Not available.

Analysis objectives

AO3.1: To which extent is it feasible to establish and operate distributed simulation integrating NATO and national simulations and training management tools?

Answer: An analysis of the answers to the various questions that were developed to assess the feasibility to establish distributed simulation shows that a concerted sizeable effort by specialised personnel is required for an extended period. Indeed the contribution to the FOM development required an average of 72-man-days by a team of 3 to 4 specialist personnel, a limited investment (avg 20 KEuro) in tools and travel. Compliance testing required an additional average effort of 60 man-days by a team of 2 to 3 specialist personnel and avg 25 KEuro investment. Answers pertaining to the actual operational usage and the associated data preparation and federation management effort were not received. Therefore we cannot make any conclusions about the operation of distributed simulation in an actual operational training context.

AO3.2: To which extent were other options to achieve similar objectives considered?

Answer: Seven responses were received that indicate that alternatives were studied. The assessment is that an average of 100 to 120 man-days would be required by a team of 2 to 4 specialist personnel to extend a single simulation to provide the functionality that was provided by the NETN federation. An average investment of 50 to 60 KEuro would be required to complement the development effort.

AO4.1: To which extent are the technical standards that have been applied in the development of the NETN federation sufficient to support the establishment and operation of a flexible distributed simulation environment integrating NATO and national simulation and training management tools?

Answer: The technical standards are sufficient to a limited extent. They are clear and they enable simulations to talk with each other, but do not cover other important areas like management of the network and of the federation, perception, and interface to C2 systems. Application of the currently recommended technical standards requires considerable effort, which is however not different from effort needed to apply previous technical standards.

AO6.1: To which extent can the shared scenario library be filled and searched to enable exercise designers to share and retrieve useful scenario descriptions?

Answer: Submission is not entirely clear and requires more explanation of the terms that are being used. The submission tool combines easy and more complicated parts. Its user friendliness can do to be improved. Searching the library is a simple mechanism. As above, conclusions need to be qualified due to the very limited response.

AO6.2: With respect to the scenario that is being used in the NETN experiment, to which extent can an existing scenario be shared across a federation?

Answer: Responders indicated that the average level of effort that was required consisted of approximately 25 man-days for each simulation to set-up data in accordance with the existing scenario by a specialist team of 1 to 2 persons and an investment averaging 25 KEuro for tools and travel. Data expansion was required in most cases to a limited extent. Limited effort was devoted for data and entity behaviour.

Analysis objectives

AO7.1: To which extent can the NETN reference architecture support distributed simulation integrating NATO and national simulations and training management tools at multiple levels of granularity?

Answer: The selection of granularity is considered difficult when there are options. Indeed in an entity-level simulation the level of granularity is fixed. The experiment scenario did not provide sufficient opportunity to test this aspect.

B.3 ADDITIONAL RECOMMENDATIONS

Based on the analysis of comments provided by respondents of the NETN Survey, the following additional recommendations can be made:

- 1) Enhance the technical standards to include areas such as:
 - Distributed exercise preparation and management;
 - Integration of NATO and national C2 systems with the training environment;
 - Allocation of the execution of tasks within the federation;
 - Management of perception;
 - Management of multi-granularity (multi-resolution);
 - Shared scenarios; and
 - Federation management.

Benefit: Wider application potential of the recommendations to the exercise domain.

- 2) Expand procedures and tools to ensure compliance of federates and processes with the complete set of technical standards. The responsibility and roles in compliance testing should be assigned explicitly.

Benefit: If compliance is ensured, composing and configuring a federation for a distributed exercise will require less time and the risk during execution will be reduced significantly.

- 3) Sustain the use of CFBLNet, but validate the assumption about CFBLNet's ability to provide secure services.

Benefit: Efficient environment for federation composition and expansion.

