A CAX is an exercise where electronic means are used

- to immerse the training audience in a realistic environment,
- and to help the exercise planning group and the exercise control staff for controlling the exercise process so that it achieves the objectives effectively.
CAX Support

- Exercise planning and management tools
- Constructive simulation systems and ancillary tools
- C2 & OPP tools mediationware
- Experimentation & analysis tools
## Military Simulations

<table>
<thead>
<tr>
<th>Category</th>
<th>People</th>
<th>Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Live</strong></td>
<td>Real</td>
<td>Real</td>
</tr>
<tr>
<td><strong>Virtual</strong></td>
<td>Real</td>
<td>Simulated</td>
</tr>
<tr>
<td><strong>Constructive</strong></td>
<td>Simulated</td>
<td>Simulated</td>
</tr>
</tbody>
</table>
## Military Constructive Simulations

<table>
<thead>
<tr>
<th>Category</th>
<th>Level</th>
<th>Objects</th>
<th>Echelon</th>
<th>Terrain</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Resolution</td>
<td>Entity</td>
<td>Singular objects, e.g. tank, troop</td>
<td>Tactical, e.g., platoon, company</td>
<td>High resolution, 200km × 200km</td>
</tr>
<tr>
<td>Highly Aggregated</td>
<td>Aggregate</td>
<td>Units, e.g. battalion, company</td>
<td>Operational, e.g., corps</td>
<td>Low resolution, 4000km × 4000km</td>
</tr>
</tbody>
</table>

The gap between these two categories is being closed.
Joint Theater Level Simulation (JTLS) is a joint highly aggregated constructive simulation system.

Joint Conflict and Tactical Simulation (JCATS) is a joint high resolution constructive simulation system.

Virtual Battle Space (VBS3) is a very high resolution constructive and virtual simulation system.
Future of Constructive M&S

- Cloud computing and M&S as a Service (MSaaS)
  - Step 1: standalone MSaaS
  - Step 2: service oriented MSaaS
Simulation and CAX support personnel

- computes the possible outcomes, i.e., results of the commands given for the simulated units and entities,

- simulates the entities and conditions not controlled by the TA or EXCON according to the parameters set,

- maintains a consistent white truth,

- provides inputs for the C2 systems.
Exercise Process

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