EventChannelNetwork
Asynchronous with Hard Real-Time

System Declaration for controller node

```
<node name="Controller" id="4">
  <socket/>
  <proxy name="Temp" id="1">
    <channel><release/></channel>
  </proxy>
  <handler><wcet/></handler>
</node>
```

Event Channels to receive in controller node

<table>
<thead>
<tr>
<th>Channel</th>
<th>Start</th>
<th>Deadline</th>
<th>Period</th>
<th>Jitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>ch 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ch 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ch 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test Scenario

1 Temperature sensor
- after start periodic with low jitter, deadline < period
- action: trigger heating or cooling

2 Function checker
- after fixed start time, periodic function check with large jitter, large period and deadline
- action: adjust production parameters

3 System health signal
- periodic signal with deadline < period
- action: shutdown and call for service

Real-Time Network
- broadcast or multicast, object serialization with primitive values

Controller
- to receive events and execute actions in real-time

Linear Model
- with Receivers (highest priority), sporadic Manager, and Activity threads (deadline monotonic priorities)

Channel Parameters

<table>
<thead>
<tr>
<th>Channel</th>
<th>Temp 1</th>
<th>Check 2</th>
<th>Health 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>600</td>
<td>1200</td>
<td>400</td>
</tr>
<tr>
<td>Deadline</td>
<td>300</td>
<td>1200</td>
<td>200</td>
</tr>
<tr>
<td>Start</td>
<td>100</td>
<td>350</td>
<td>100</td>
</tr>
<tr>
<td>Jitter</td>
<td>50</td>
<td>150</td>
<td>50</td>
</tr>
<tr>
<td>WCET</td>
<td>50</td>
<td>250</td>
<td>50</td>
</tr>
</tbody>
</table>

Runtime Requirements
- Real-Time Java (RTSJ) with Fixed Priority Scheduling and Priority Ceiling

Analysis
- `./mast_analysis rma model.txt`