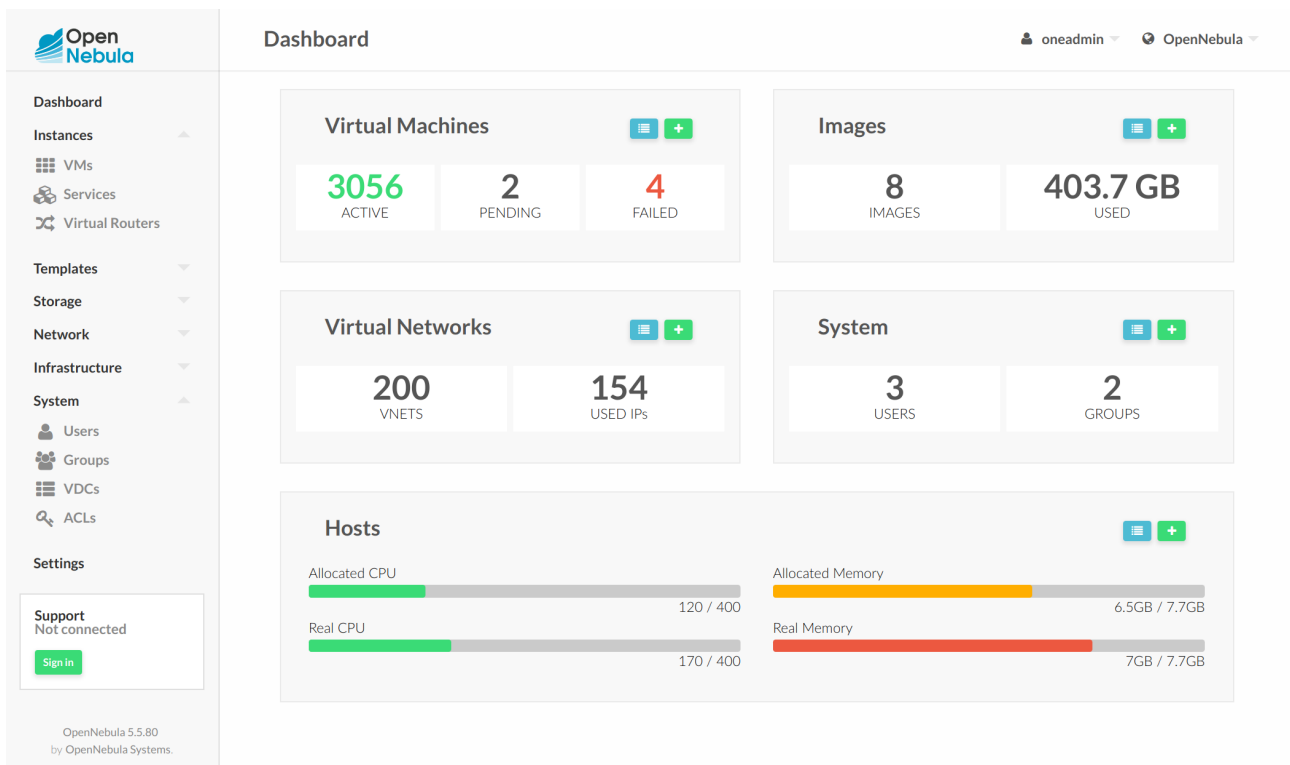
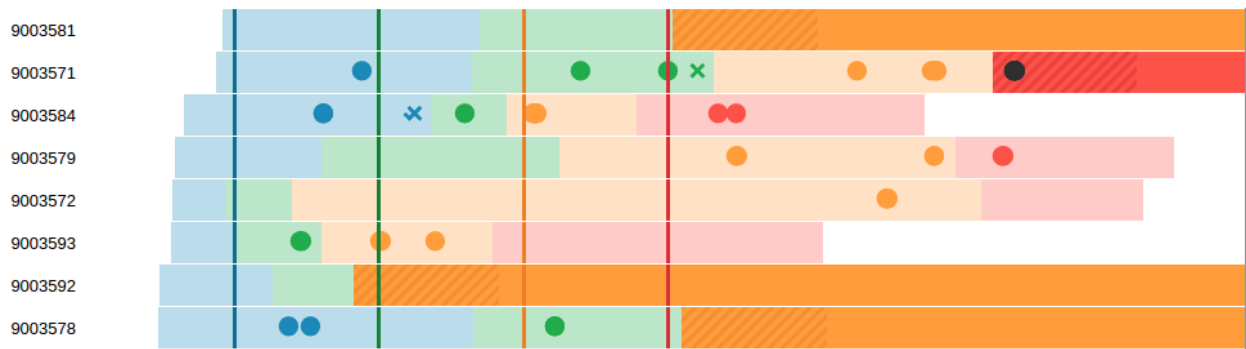


Network Topology with semantic symbols supporting situational awareness: node types (server, PC, mobile), logical roles of hosts (attacker, victim), received e-mails and their state at host *player*, colored network links to express current throughput.

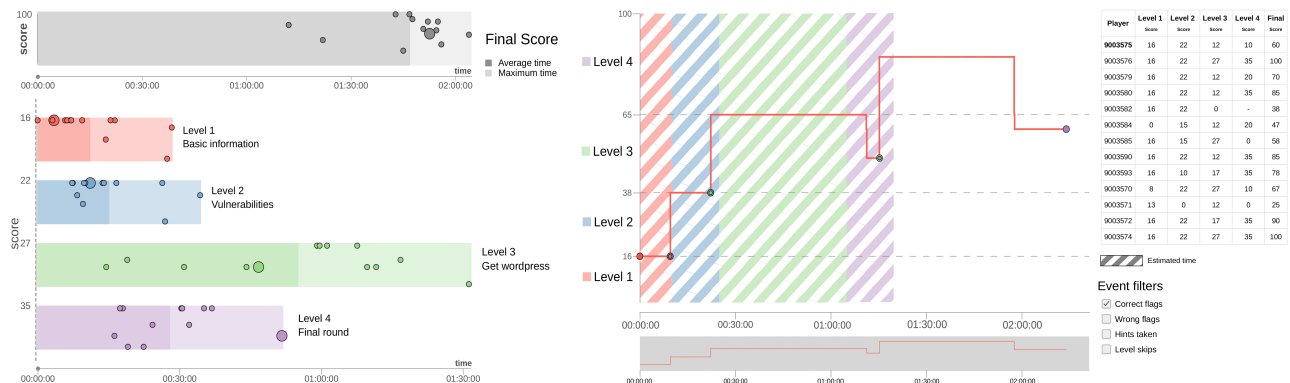


OpenNebula Sunstone dashboard enables *operators* to gain insight into the state of the unreliable low-level infrastructure of the cyber range and to perform basic analysis.

02:26:25



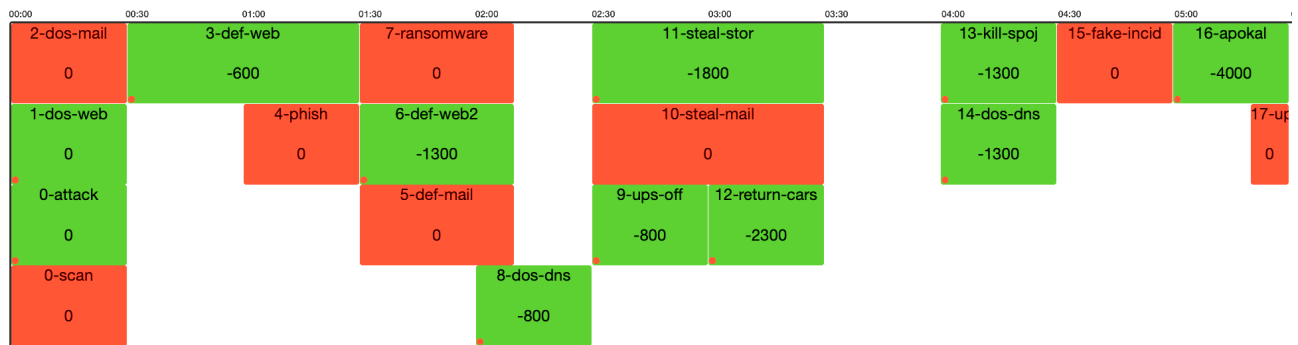
CTF Training Session Overview shows the progress of individual trainees during the training session. Each row represents one TRAINEE. Colored bars represent levels of the CTF game. Dots represent user events (e.g. taking a hint). Vertical lines are expected level duration. The bold vertical line at the right-hand side smoothly moves to the right and represents the current time.



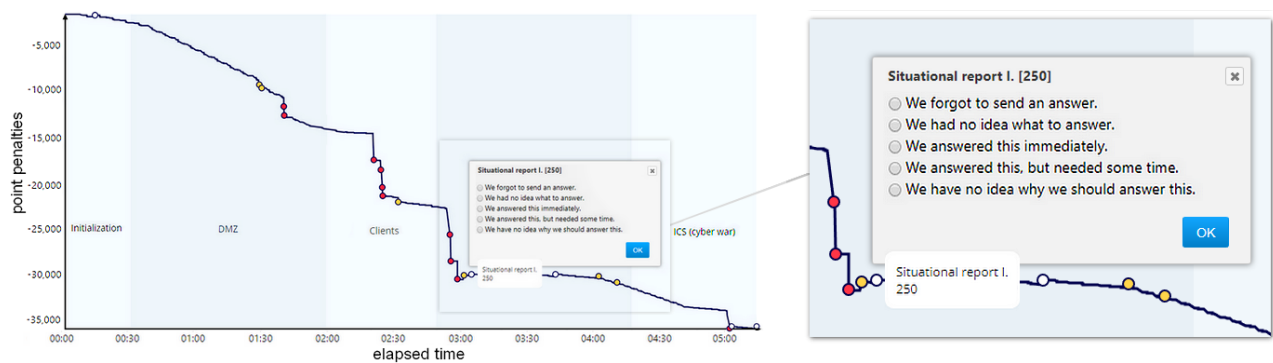
CTF Feedback Dashboard providing individual view on TRAINEE's score results and development in time. The left-hand side view provides the final score overview for comparison with other TRAINEES. Length of the bars show the time of the slowest trainee, different color intensity informs about the average time. The right-hand part of the dashboard displays the individual score development in time throughout the game. The width of striped areas represents time spent in levels. Dots represent user events.

Cyber Exercise Score						
Team Name	Services	Attacks	Injects	Users	VNC	Total Score
Blue Team 1	91,843	-8,500	9,000	-1,100	0	91,243
Blue Team 5	92,230	-5,000	3,600	-400	0	90,430
Blue Team 2	81,280	-10,750	6,425	-4,000	0	72,955
Blue Team 4	74,518	-11,000	6,650	0	-4,000	66,168
Blue Team 3	85,756	-12,000	2,475	-1,700	-9,500	65,031

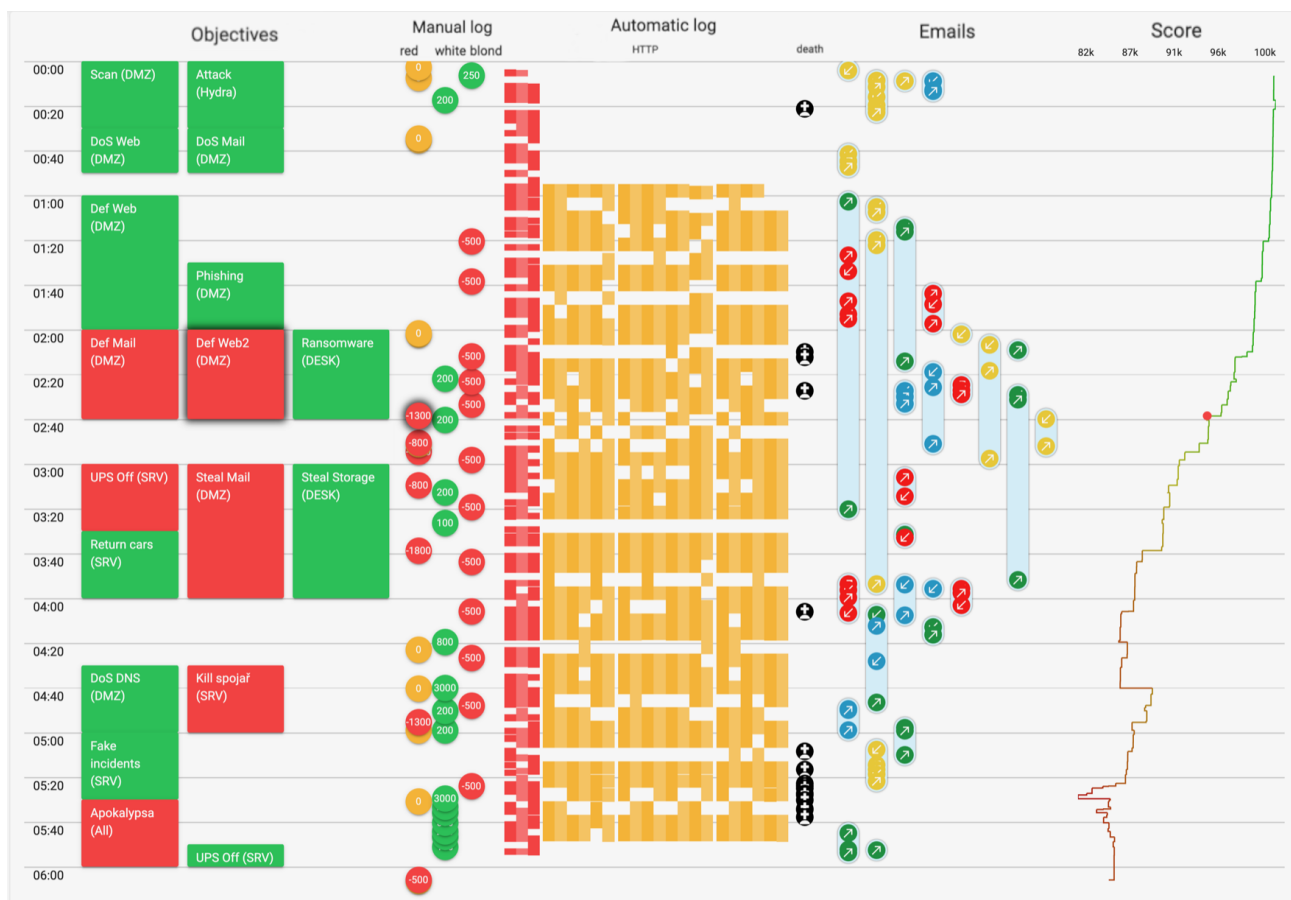
CDX Scoreboard shows the current scores of all *blue teams*. It shows total score as well as per-category scores and penalties, allowing *blue teams* them to compare themselves and to infer the consequences of their actions.



CDX Attack Plan displays the interactive plan of individual attacks and their state (inactive/ongoing/completed). The green color stands for successful attacks, red for unsuccessful ones (i.e., the *blue team* has defended themselves). Attack type abbreviation and given penalty points are shown within each block. By clicking on an attack block, further details are shown (e.g., additional comments, screenshots).



CDX Personalized Feedback shows the score development throughout the training session of a single *blue team*. Dots include details about penalties entered by *red*, *white*, and *green teams*. Each dot is associated with a short feedback poll used for gathering further information from TRAINEES.



CDX Analytical Dashboard provides a timeline visualization of automatic and manual logs together with the communication threads among the *blue team* and corresponding *white team* members.