

Contact:

Dr. Gerold Yonas, VP & Principal Scientist
gyonas@sandia.gov / 505-845-9820

The Die is Cast...



A new attack by al Qaeda on the U.S. is underway. They plan to use a truck to spray a highly radioactive liquid on the Golden Gate Bridge. This attack would not be detected easily until downtown San Francisco and Marin County are widely contaminated. Public fear will be intense, and the regional economy will be devastated. Health and environmental impacts will be significant. The terrorist operatives will rendezvous in a South SF warehouse where a support cell has modified a small truck for spraying the radioactive solution. A smuggler will bring them the radioactive material via freighter from the Philippines.

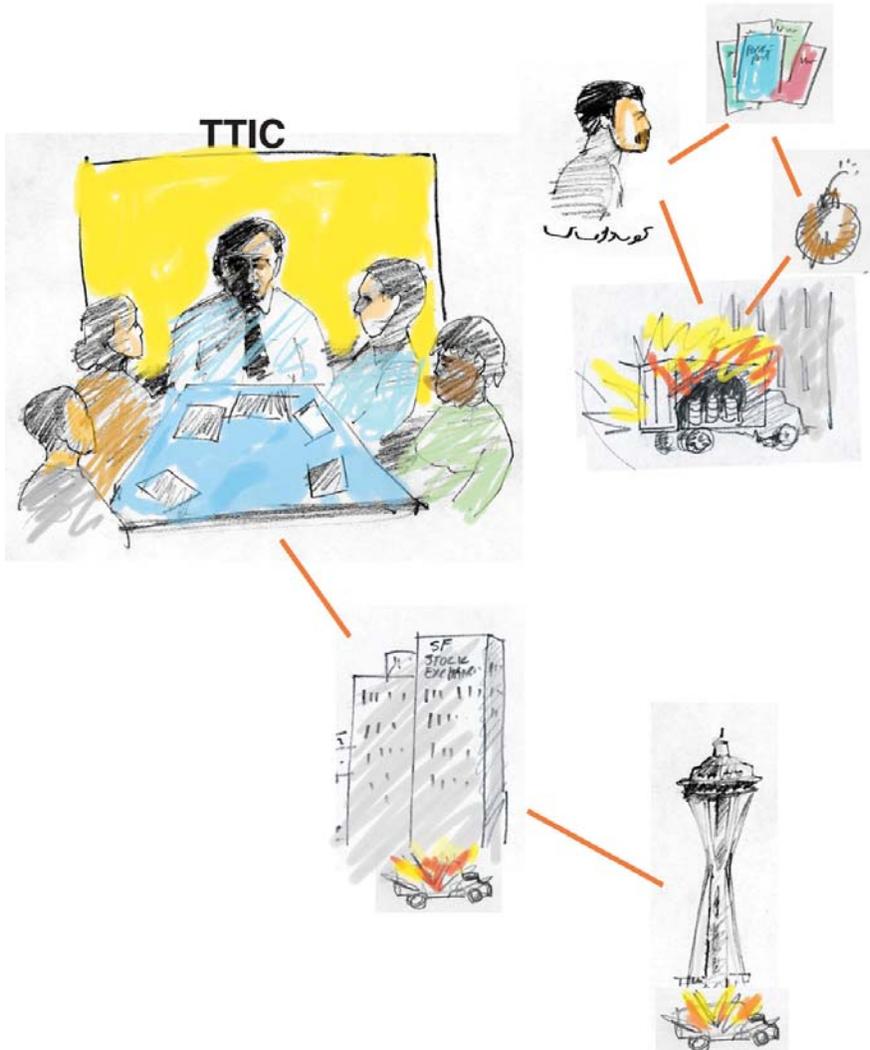
This is the story of how the U.S., with assistance from advanced techniques and tools, successfully connects the appropriate dots and interdicts this plan before the damage is done and handles the aftermath in a strategic and well-considered manner.

The story unfolds...



The wrong focus...

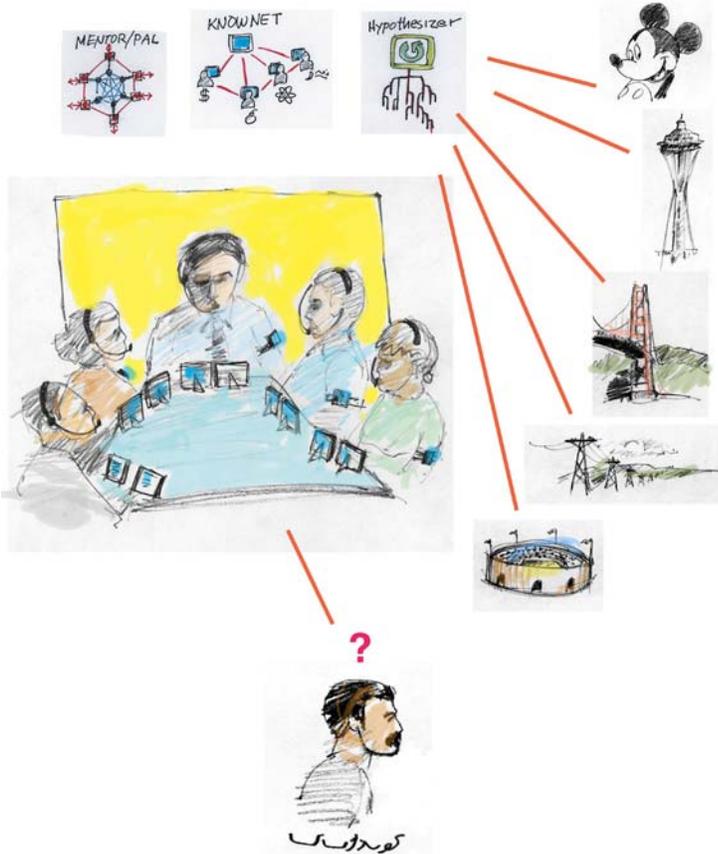
Day 2



TTIC is working to discover what all of this might mean. They begin to investigate the linkages between people in these clues. The recently identified al Qaeda operative in Seattle has been traveling under various aliases to the Seattle area regularly over the past year. He is also identified as someone who is believed to have been through an al Qaeda training camp and is trained in explosives. Searches through Oregon newspapers reveal that a large truck was stolen in Portland with reports that the suspect appeared “middle Eastern.”

This combination of clues leads the TTIC team to theorize that the plan is a truck bomb. Likely targets include the Seattle Space Needle and the SF stock exchange.

Day 2 (cont'd)

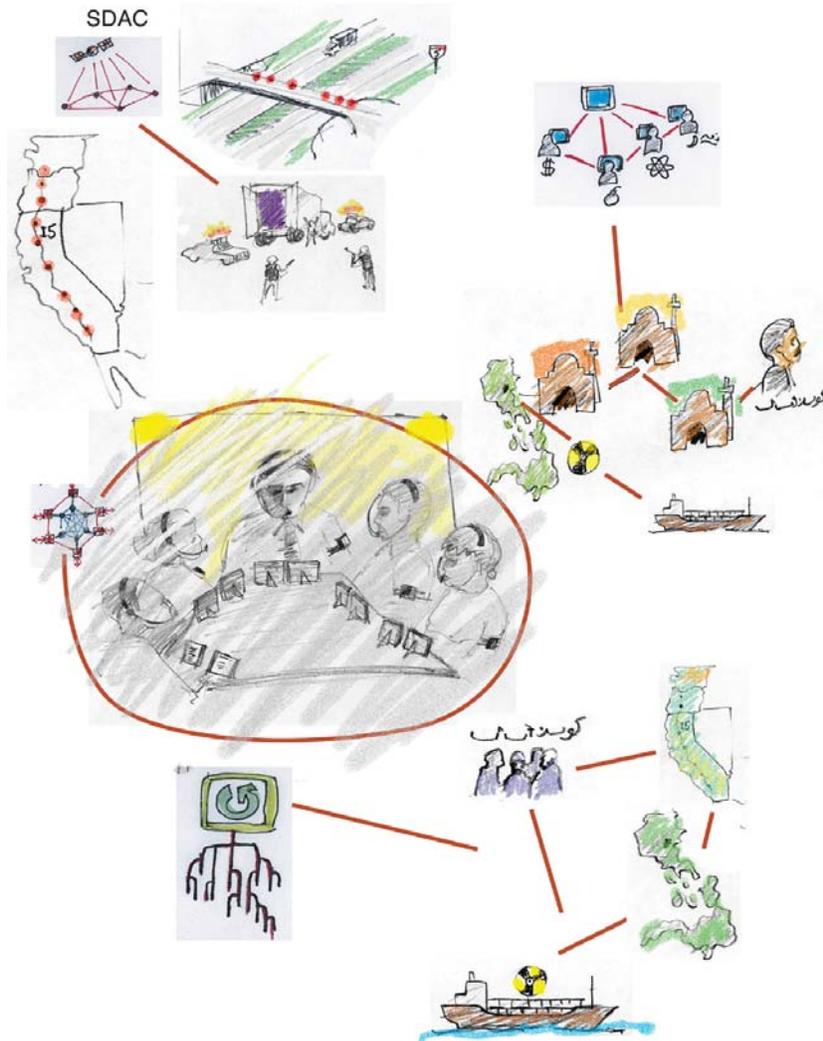


However, this TTIC team is not limited to working with analysts' reports, data mining tools and their personal networks. They are also equipped with the latest Sandia tools. These include several new capabilities: the PAL/Mentor system helps to seamlessly create the optimal human to human and human to machine collaboration. The Hypothesizer expands the analysts' avenues of investigation and winnows the applicable clues to a manageable set. The KnowNet provides prompt access to experts in terrorist behaviors. The Seldon system provides a powerful socio-behavioral modeling capability to decision makers.

In our story, the PAL/Mentor system working in the background notes that the team is focused on the truck bomb theory. It feeds this theory and the clues that support it to the hypothesizer. The hypothesizer generates a list of high value targets on the west coast including parts of critical infrastructures (power generation and grid components, communications,

transportation, stock market exchange, natural gas and petroleum points...), sporting arenas, Disneyland, icons (Space Needle, Golden Gate Bridge.), etc. The hypothesizer informs the analysts that there are no valid scenarios in its system in which a truck bomb attack is successful with only one actor, and that the quantity of stolen explosives is insufficient for real damage. This leads to suggestions for more investigations, as to whether another al Qaeda cell on the west coast is involved. Or, the TTIC team might look for other sources for explosives or alternate means of damage. The Hypothesizer suggests that typical signatures of al Qaeda are not present in the Oregon theft, so the team might reconsider this scenario or look for more clues. (This was accomplished through cultural experts within the KnowNet and validated through computer models in Seldon.) The MENTOR engages the KnowNet sending a message to the experts on al Qaeda about the hypotheses.

Day 3



Expanding the view...

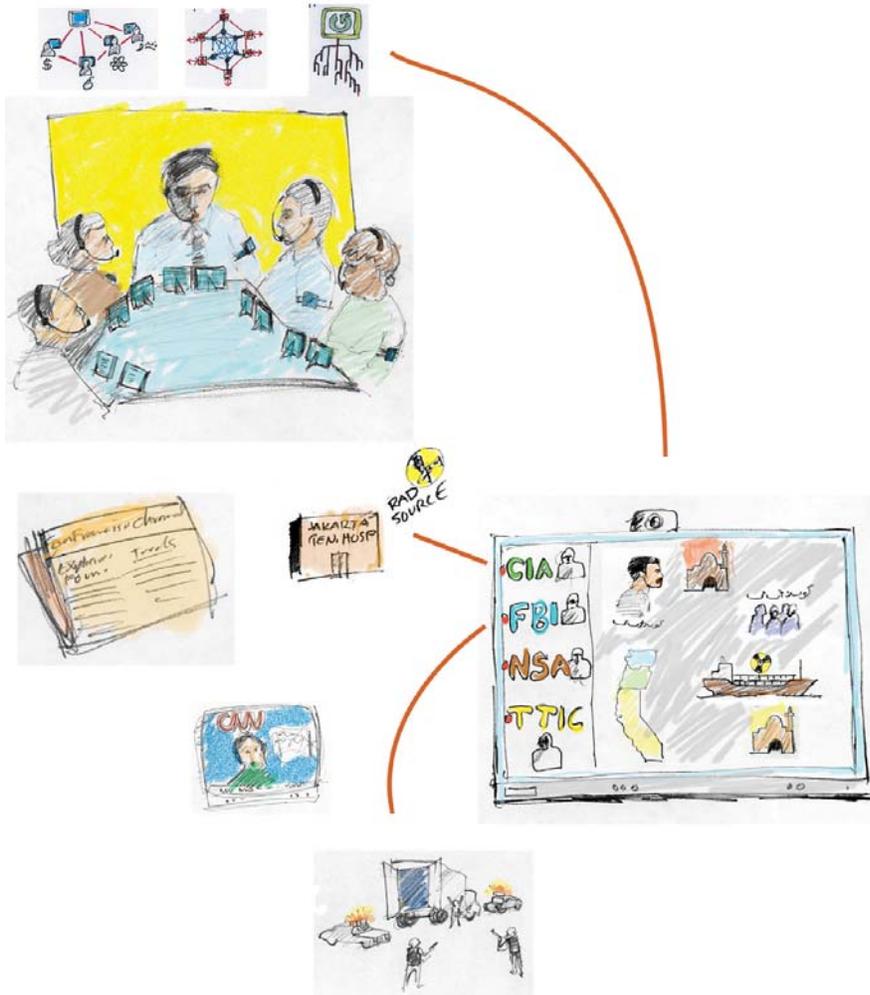
Another clue: SDACs on I-5 freeway have spotted the truck stolen in Portland moving south from Seattle. Stopping this truck is given high priority by the FBI and local law enforcement. In the meantime, experts from KnowNet call attention to radical mosques in the area. They identify a link among a collection of mosques in west coast area and their parent mosques overseas. Included in the list is a radical mosque in the Philippines formerly attended by the al Qaeda operative detected by U.S. Customs. The team finds that the missing husband in the Philippines once attended the same radical mosque, and works in the merchant marine. This information is fed back to the hypothesizer as a possible second operator on the truck bomb scenario. It generates a list of possible alternate scenarios with different characteristics than the current theory, such as

the use of a radiation device and Pacific Ocean routes for delivery of technical means. The MENTOR/Pal system has been continuously monitoring the physiology and collaboration signatures of the core TTIC expert team, who have been working long hours under increasing stress. It suggests to the team leader that some members need rest, and the system identifies expert analysts who are suggested as replacements.

Collaboration improves...

The TTIC team has been focusing on the truck bomb in SF with more support for the leading theory: today's San Francisco *Chronicle* story discusses a large explosives theft from a California highway construction site last month that was not reported to police.

Day 4

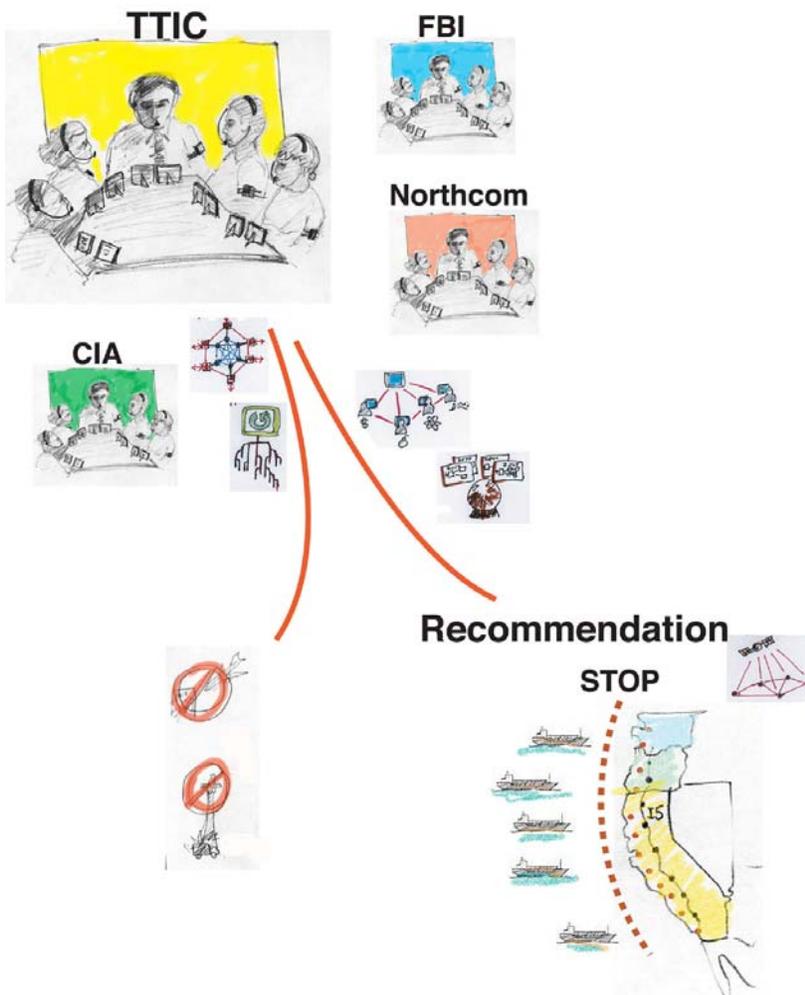


The MENTOR/Pal suggests a virtual meeting between CIA, NSA, FBI and TTIC to consider all the plausible alternative scenarios with the possible indicators of specific activity. This set of possible scenarios is also called to the attention of CIA and FBI teams using this system. CIA shares info with FBI that a large radiation source was stolen in Indonesia two months ago and is still missing. The stolen truck is located and searched. The missing explosives are not found, and no link to al Qaeda is evident.

Timeliness is of the essence...

Since these are inexpensive and can be deployed quickly with little manual training, SDACs are in place overnight in San Diego, Los Angeles, San Francisco, Portland, Seattle, and at the several ports of entry from Canada and Mexico. As ships arrive in port, they are deployed before unloading is allowed. During all this activity, Mentor and the Hypothesizers are serving as unbiased observers, constantly evaluating the evidence both pro and con and keeping the investigation on track. Meanwhile, alerts within the shipping industry have tracked the missing husband from the Philippines to a freighter inbound for San Francisco.

Day 6

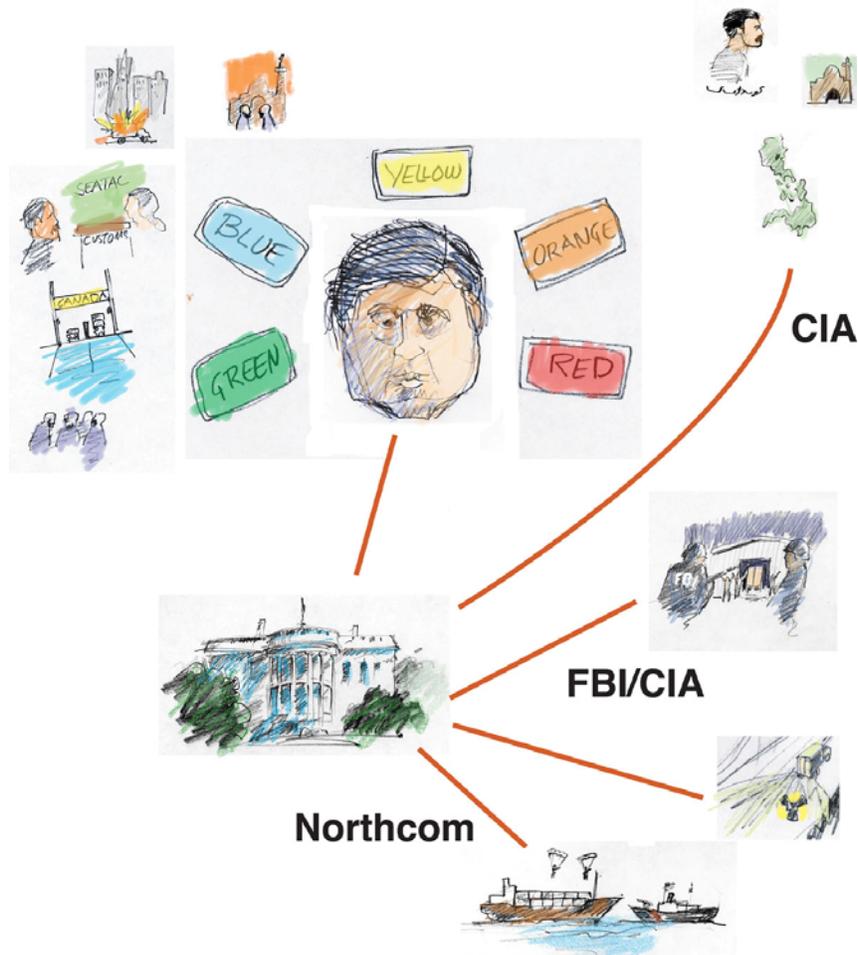


Using the Mentor/PAL systems, a joint distributed decisions session is held between key officials in FBI, CIA, and NORTHCOM in consultation with TTIC. They reach a joint recommendation to interdict this incoming freighter in international waters. (This joint decision was reached quickly through training with the PAL/Mentor systems in all of these agencies to establish a high performance set of teams for this kind of decision making).

It all pays off...

DHS briefs the President and his advisors and a decision is made to have NORTHCOM task a SEAL team to interdict the freighter at sea. In conjunction with this action, the FBI works with local law enforcement to track recent sales of spray equipment which leads them to a warehouse in San Francisco.

Day 7

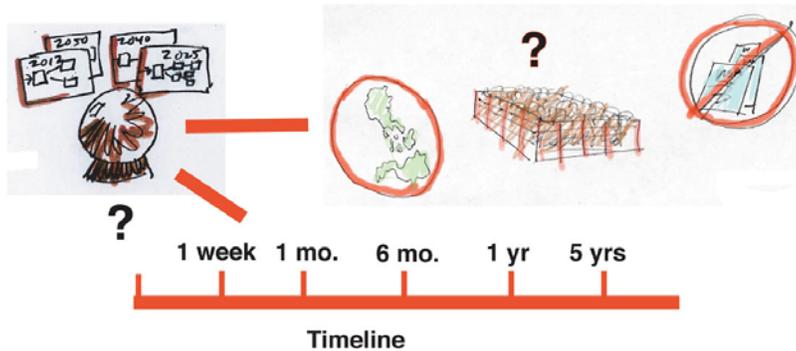


At the site, they find evidence of modifications to a rented truck to equip it for spraying and protective gear for handling radioactive materials. The CIA and FBI collaborate and identify that the warehouse is owned by someone with suspected links to al Qaeda. A small cell of al Qaeda operatives is identified and arrested.

The radiological material stolen in the Philippines is traced to a rogue senior military officer working with a group of al Qaeda operatives in his unit. There are indications of a wider fundamentalist Islamic conspiracy in the Philippines armed forces.

Understanding the long view...

Day 8



A media frenzy prompts public to call for urgent responses in the Philippines. The cabinet is convened to look at options for this kind of response including things like:

- Economic sanctions against the Philippines
- Barring exports from the Philippines for a year
- Detaining more than a thousand Filipino nationals, denying all pending Filipino visa applications
- Key Filipinos could be solicited for their assistance in tracking down terrorists

As part of their deliberations, SELDON models are used to study the impact of these potential responses on long-term terrorist support from the Philippines and Asia. These models are offered to help the Philippine government understand the impact of local policies on terrorism support within their country.