Collaborative Situational Awareness

The Social Life of Dangerous Geopolitical Situations

John H. Ganter
jganter@sandia.gov

11 January 2011, V6

Dialogue

Sandia National Laboratories

The challenge of technical intelligence is that more data often does not reduce situational complexity and ambiguity

It's 0300 Sunday morning and the three questions are:

Has something changed?
What could happen next?
Are we still prepared?

LMC

Top-Down Solutions:
More process
More hardware
More software
More bits of precision
More quantification

The surprising bottom-up solution in this technical, formal environment: more informal sensemaking via social media…
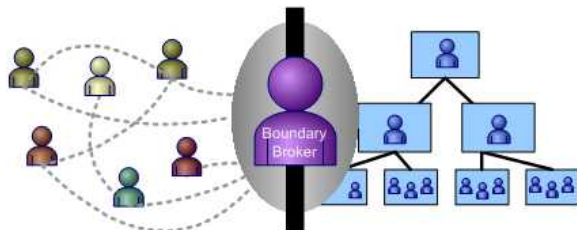
"Who can we dialogue with?"

This talk explains how virtual teams form across organizational boundaries to make sense in time to respond

Collaboration allows situational awareness and sensemaking across semi-cooperative organizations

Network brokers cultivate weak ties that induce cooperative behavior

Boundary brokers access organizational experts while maximizing organizational *return on attention*

3

Situational Awareness is necessary but insufficient in complex, adversarial contexts

Situational Awareness: mental model of what has happened and is happening in your threat/opportunity environment

Problem: Situational awareness cannot explain contradictory information and multiple causes and effects

The universal need for dialogue:

"People look beyond information to triangulate reliability"*

*Brown & Duguid, 2000, *The Social Life of Information*.

Collaborative dialogue allows sensemaking across semi-cooperative organizations

Sensemaking is collaboratively assembling fuzzy -- often contradictory -- evidence into a sharper story that is slightly predictive of who is up to what and where to look for more clues to what might happen next*

All-Source Analysis tribe

Sensor ops tribe

20:10:15 Hugh: @Sam, what does *your* crystal ball tell us about near-term situation? It appears the opportunity for mis-calculation is high ...your thoughts sir?

Crisis Cell tribe

*based on Weick, et al., 2005, others

"The straw that stirs the drink": Disinhibition of the over-formalized by network brokers

Hints at reliability or utility of information

11:18:47 Hugh: just hit my RSS feed, good read:
http://...

Modeling altruistic behavior: share what you have

00:35:34 Karen: has Analysis1 released the report regarding the likely target? i know it was supposed to come out at COB [close of business].

00:38:02 Jason: It's being worked on as we speak. Back in Analysis1 's hands after Analysis2 R&C [review and comment].

Collective gratitude

00:39:32 Paul: Thanks, Jason.

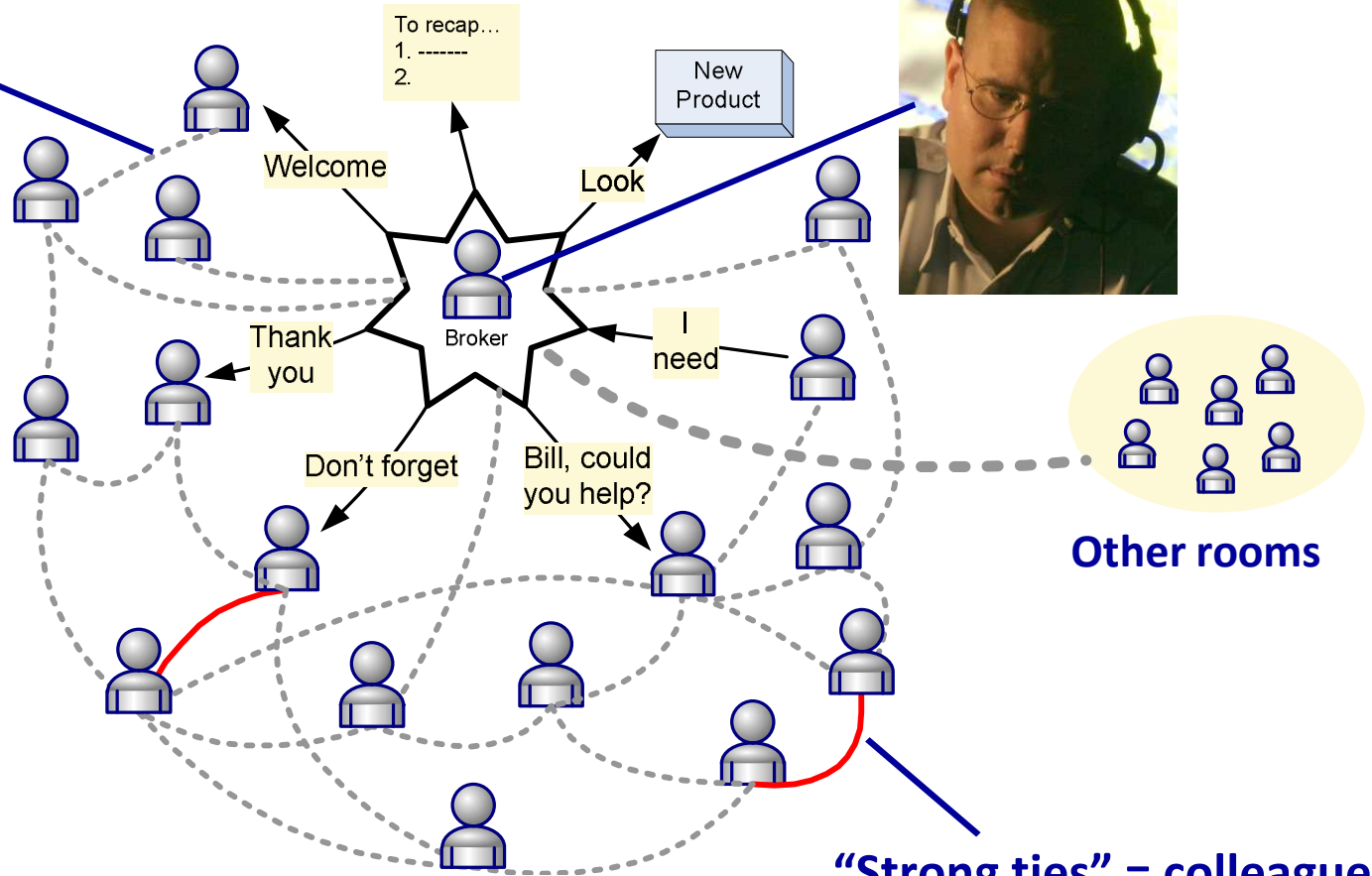00:39:41 Karen: thanks!

Gratitude and praise

04:01:29 Michael: thanks ms sarah for engaging, appreciate it ma'am

Network brokers cultivate special *weak ties* that induce cooperative behavior over social distance

"Weak ties"* = acquaintances. Orienting conversations: "What's going on?"

Communication of explicit knowledge: "We have a report you might like to see"

Welcome

To recap…
1. -------
2.

New Product

Look

Thank you

Broker

I need

Don't forget

Bill, could you help?

Other rooms

"Strong ties" = colleagues. 'Crucial conversations': our risks, our decisions

*Granovetter 1973, 1983

Boundary brokers access organizational experts while protecting their time and working memory
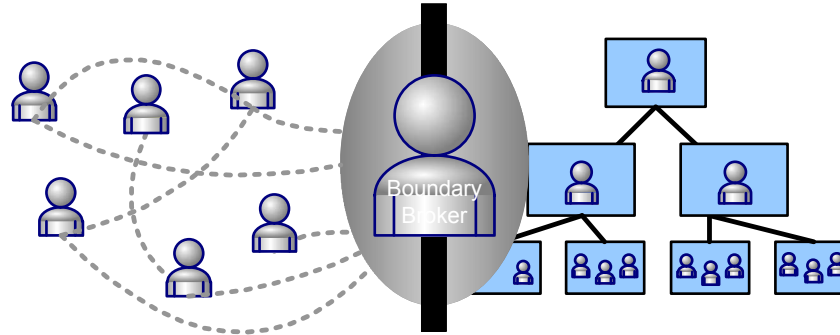
**Access to tacit knowledge (know-how)
and
Just-In-Time services**

Informal	Formal
Market	Organization
Network	Hierarchy
High Diversity	Lower Diversity
High Noise	Low Noise
Weak ties	Strong ties
Divided attention	Focused attention

"Return on attention"*

Co-production of intelligence utility and value

*Hagel, Brown & Davison, 2010, *The Power of Pull*.

Network and boundary brokers often cooperate to catalyze dialogue

Boundary broker *represents* a focused analyst in her organization

Facilitator (professional network broker) steps into role of initial conversant

Facilitator signals surprise, ignites dialogue

15:38:16 Mona: well since that possibility has come up again, I was passed something from one of our senior analysts that I'd like to share ... give y'all something to think about... let me dig it up

15:38:34 Marcus: thanks ma'am

15:39:03 Mona: I'll try to paraphrase best I can ..... he did some cursory work with the target under different conditions. There is a potential problem with this scenario. [several paragraphs of technical elaboration]
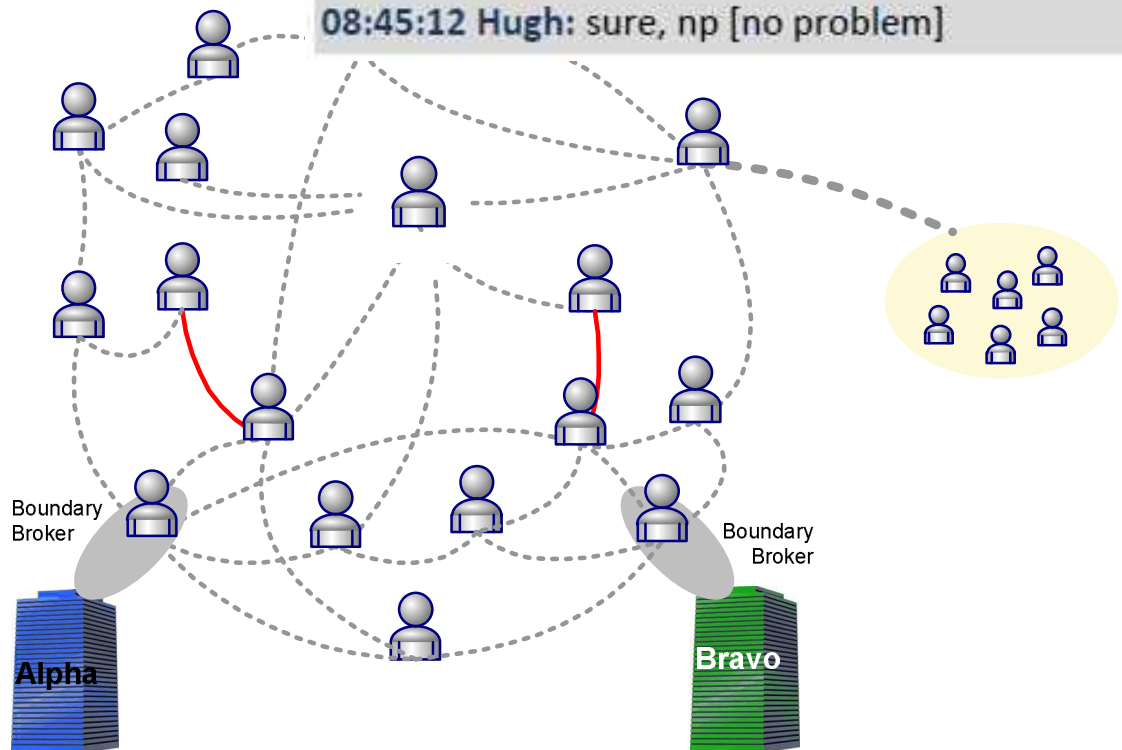
15:40:01 Marcus: yowsa

[others quickly join the discussion]

Result: Initial review of analyst's results and strong positive feedback on importance of topic

Chat brokering induces cooperative cross-cultural sharing and sensemaking that is synergistic with formal processes


08:41:48 Hugh: looking at scroll back [previous chat], are folks still in need of the 0800 status?
08:44:55 Karen: yes, if you have it readily available ...thanks
08:45:12 Hugh: sure, np [no problem]

12:50:39 Ross: so question for Alpha ... any indications that they will use the test as a feint or slight of hand and try to conduct another test while we are focused on the first?
12:52:08 Frank: Data Exploitation folks are looking at their systems... However my short answer is no. This appears to be the real deal. They are likely focused on making this test a success.
13:05:39 Ross: thanks
13:06:10 Hugh: tks [thanks] for sharing

Boundary Broker

Boundary Broker

Alpha

Bravo

02:29:04 Ralph: Let me walk over to the Analysis Shop and see if they have an answer

Paradox of situations is that more technical data requires more informal, social sensemaking to respond at the speed of need

Sensemaking can help reconcile divergent evidence into a predictive story

Brokers use weak and strong ties to tap dispersed and focused expertise with good return on attention
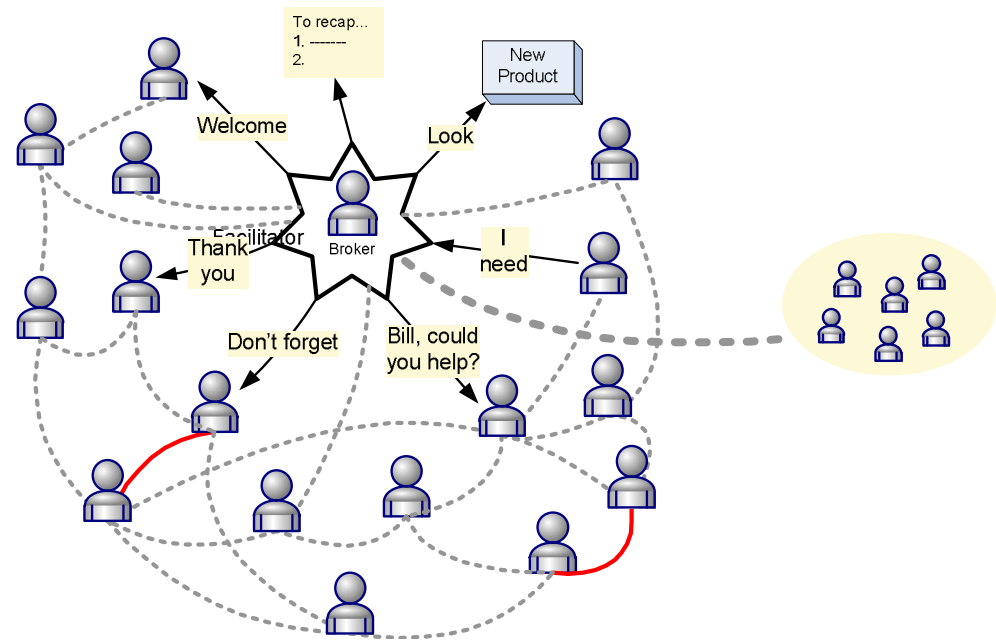
Questions?

Acknowledgements

References

Brown & Duguid. (2000) *The Social Life of Information*. Harvard Business School Press.

Granovetter, M. (1973). The Strength of Weak Ties. *The American Journal of Sociology*, 78(6), 1360-1380.

Granovetter, M. (1983). The Strength of Weak Ties: A Network Theory Revisited. *Sociological Theory*, 1, 201--233.

Hagel, Brown & Davison. (2010). *The Power of Pull*. Basic Books.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, 16(4), 409-421.

Assertion-Evidence presentation design: http://www.writing.engr.psu.edu/slides.html