ADVANCED ANALYTICS TO SUPPORT LAW ENFORCEMENT AND INTELLIGENCE AGENCIES

FLORIAN BERTRAND

WHAT'S IN ADVANCED ANALYTICS FOR LAW ENFORCEMENT AND INTELLIGENCE AGENCIES

- More than 50 concrete applications
- For both Police Zones and Federal Police
- Using Data Mining, Text Analytics and Social Network Analysis
- Covered examples : Crime Clustering, Opensource Intelligence (OSINT) and Social Network Analysis (SNA)
- Some uncovered examples : case management, corrupt cops detection, home violence prediction…

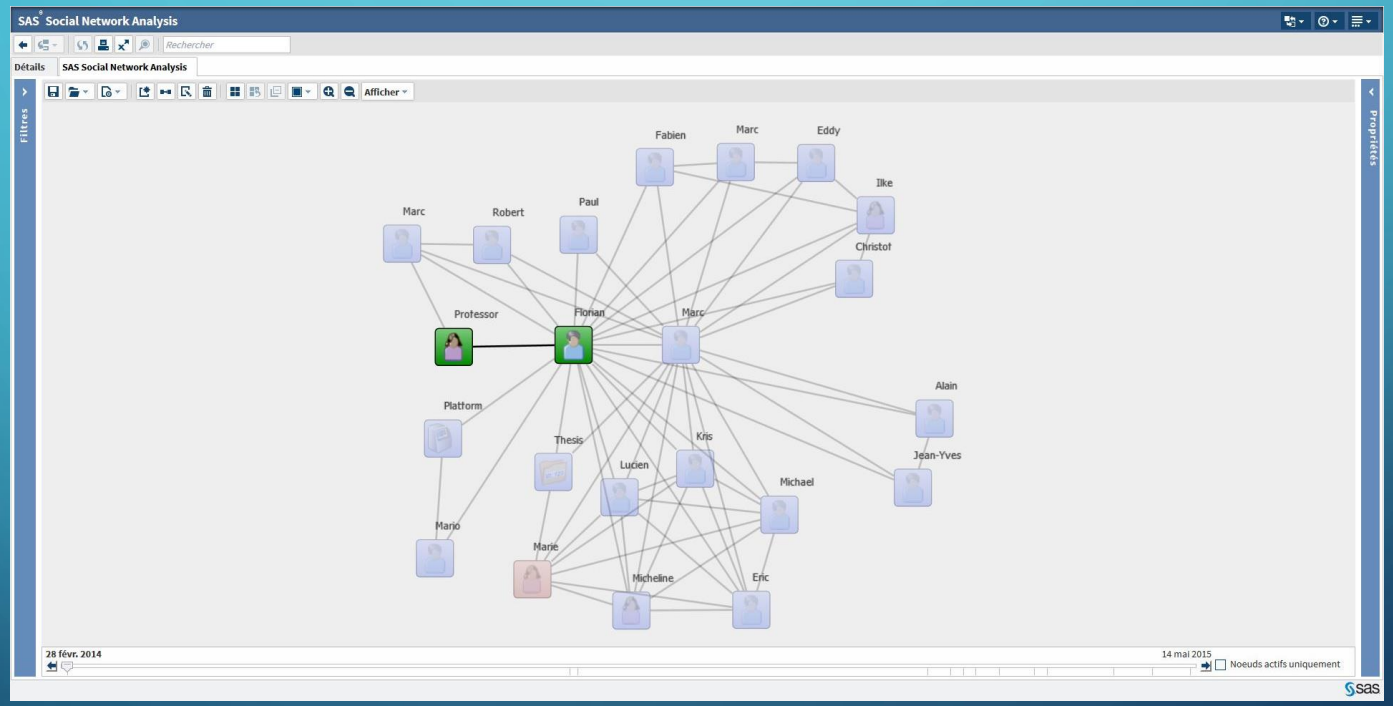
WHAT'S IN THIS PRESENTATION FOR YOU?

- A new insight into how the technologies you are using can be applied to a totally different field to which they are commonly applied
- An insight into technologies you haven't been using yet but which could be applied to your research field
- An exciting story

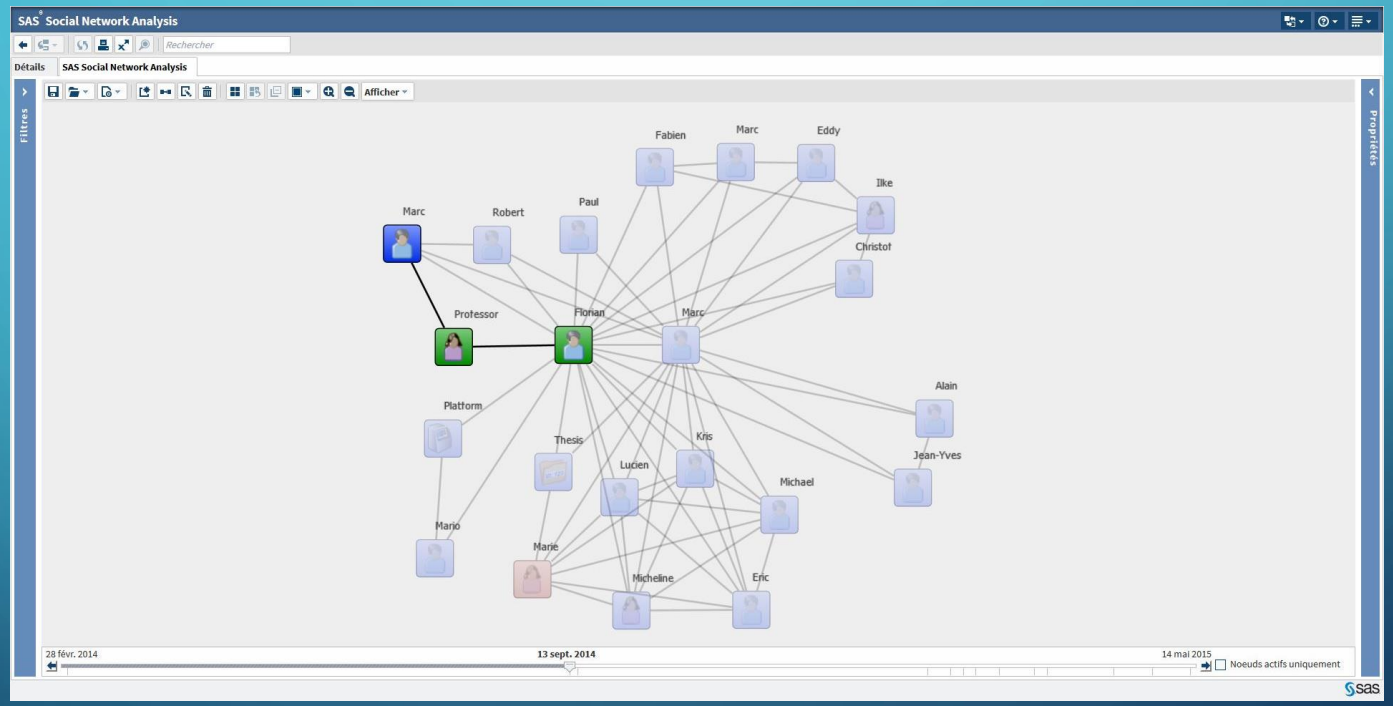
“THIS TECHNOLOGY COULD BE USED BY INTELLIGENCE AND LAW ENFORCEMENT SERVICES”

This short statement probably changed my future career. The following story tells you how…

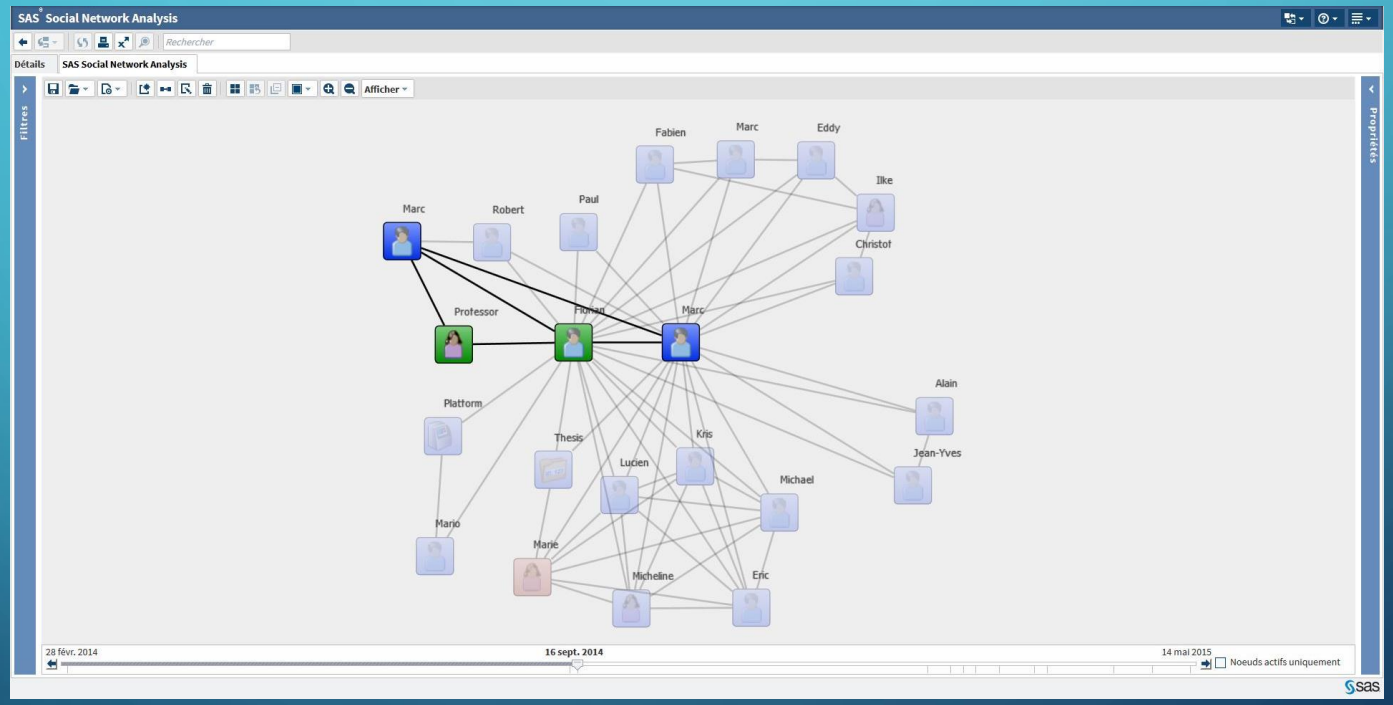
INITIAL STATE



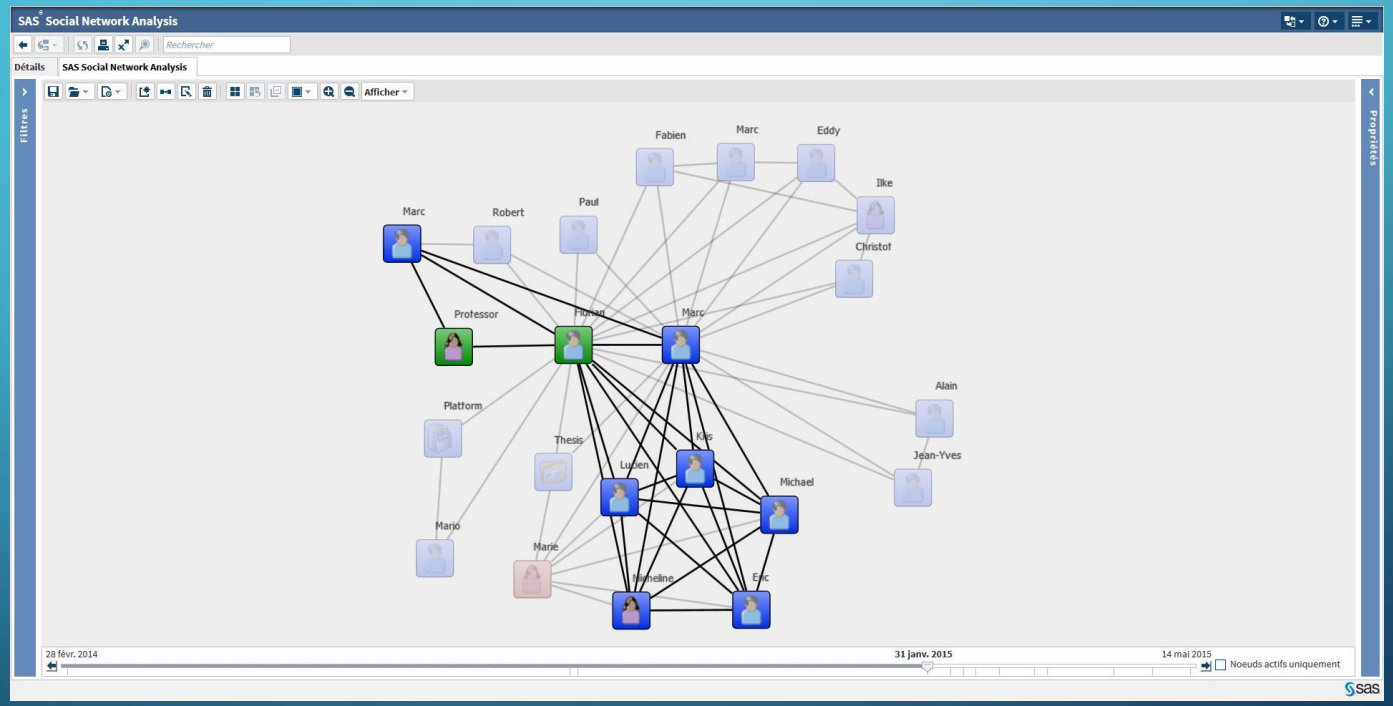
CONTACT WITH POLICE



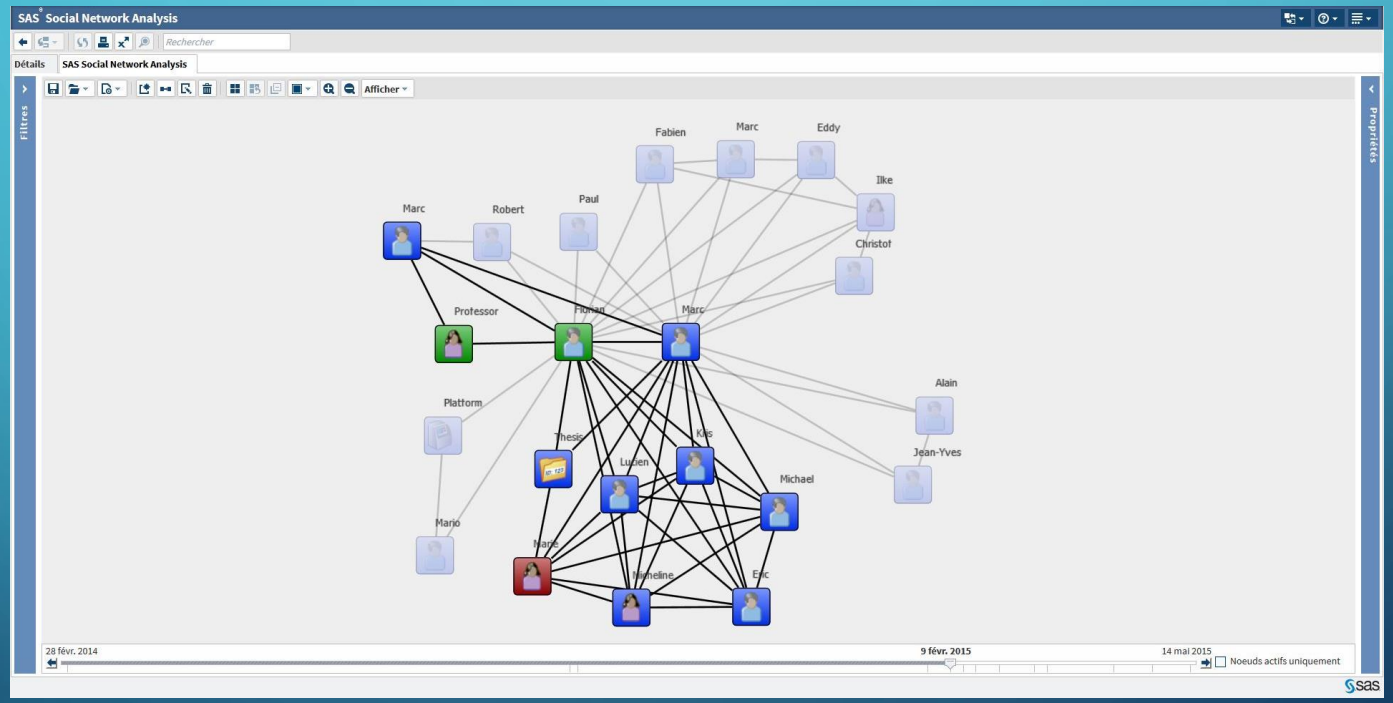
FIRST MEETING WITH POLICE



FIRST MEETING WITH CRIMINAL ANALYST TEAM



MARIE TROTTA'S THESIS

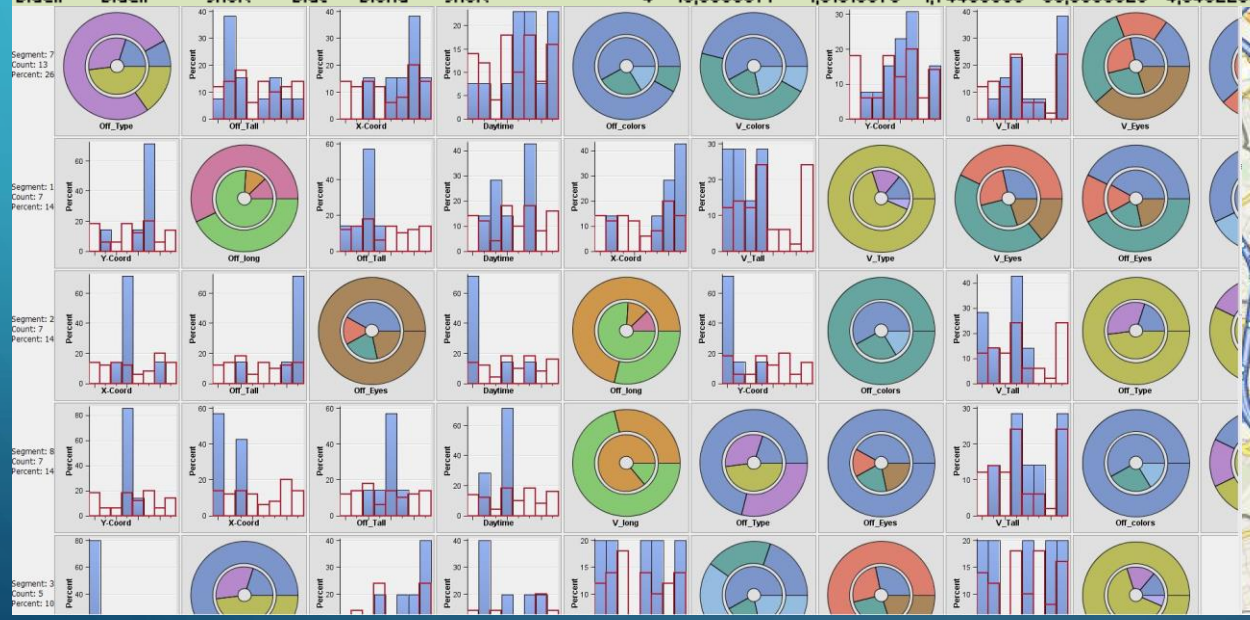


CRIME CLUSTERING

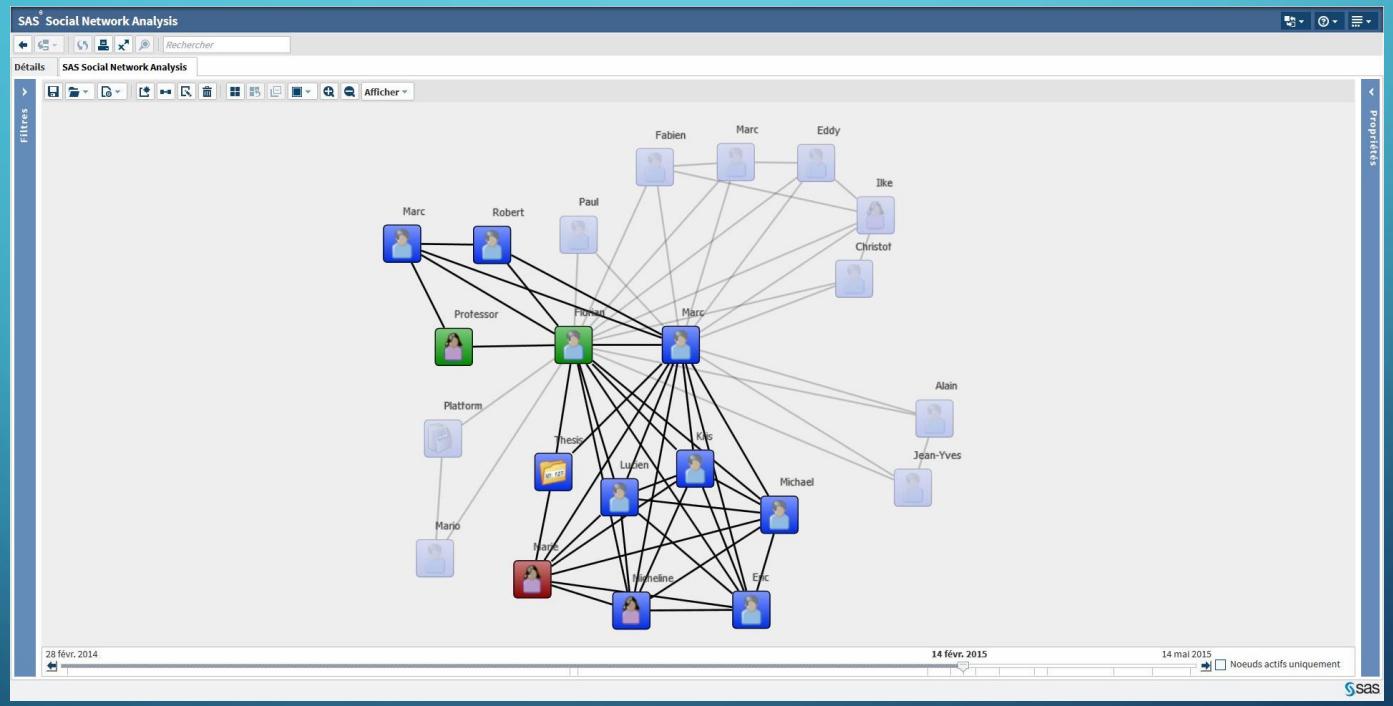
- What? linking different cases together
- Why?
  - To better tackle new phenomena by focusing on them
  - To respond quickly to crime series
  - To avoid many cases related to the same facts
- How? By finding similarities in suspects description, in modus operandi, in spatio-temporal position…

CRIME CLUSTERING

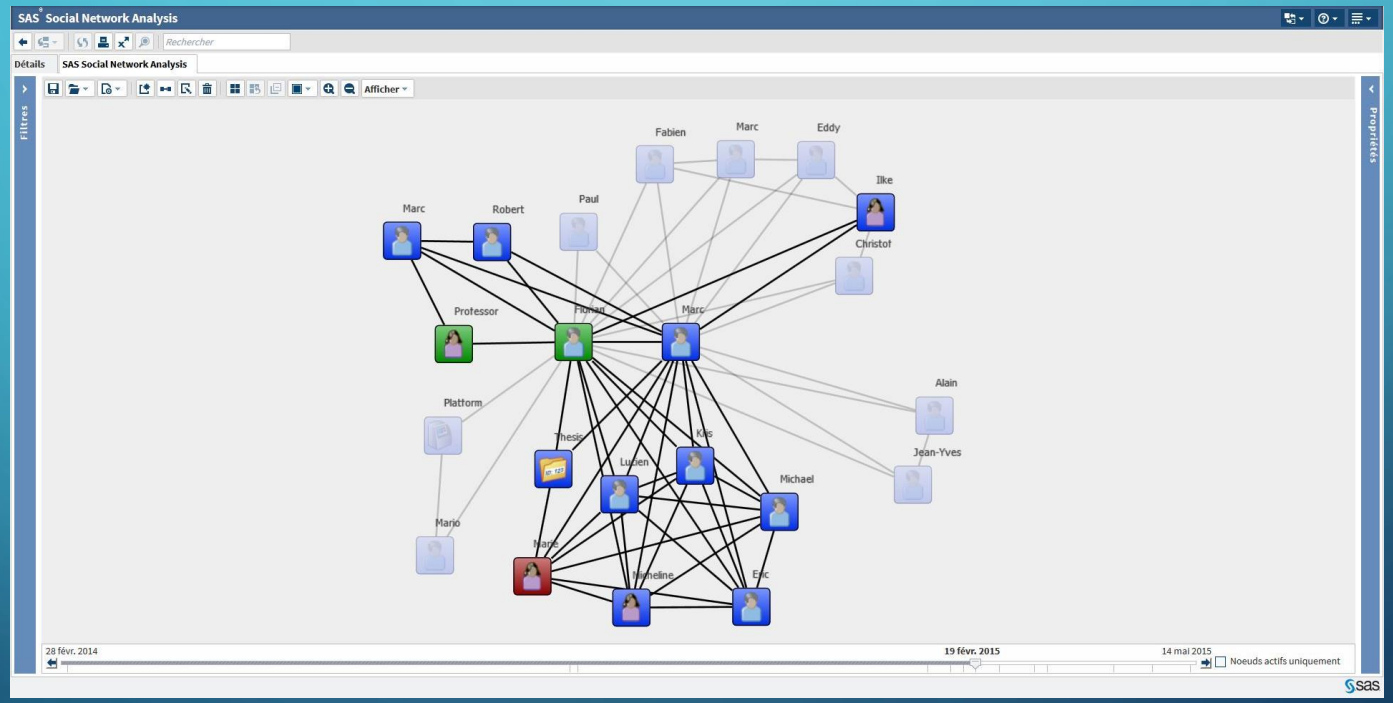
brown	black	short	brown	black	long	0	1,60657582	1,81735413	1,82153311	50,8400603	4,30784341	black	white	2	1	2
black	black	short	brown	black	long	0	11,7673484	1,73773386	1,71536818	50,8546476	4,33642772	mediterranean	mediterranean	2	1	2
brown	black	bald	blue	blond	long	0	4,9331878	1,75771812	1,70108855	50,8334486	4,36881128	white	white	3	1	3
black	black	bald	brown	black	long	1	14,7031678	1,75321056	1,72164829	50,8834632	4,37198344	mediterranean	white	3	1	3
black	black	bald	brown	black	long	1	14,1824576	1,76481232	1,71417339	50,8820637	4,37253181	mediterranean	white	3	1	3
black	black	bald	blue	blond	long	1	15,5161554	1,7563104	1,74803325	50,8870828	4,37432042	mediterranean	white	3	1	3
black	black	bald	green	brown	long	1	14,874613	1,76478755	1,75133878	50,8825931	4,37162877	mediterranean	white	3	1	3
black	black	bald	blue	brown	long	1	15,9284519	1,7579422	1,77479334	50,8830035	4,37725312	mediterranean	white	3	1	3
black	black	short	blue	blond	long	0	17,4159352	1,83706504	1,82779322	50,8148513	4,302119	black	white	4	2	1
black	black	short	blue	blond	short	4	10,3003377	1,81016578	1,74430333	50,8035628	4,34622964	black	white	4	2	1



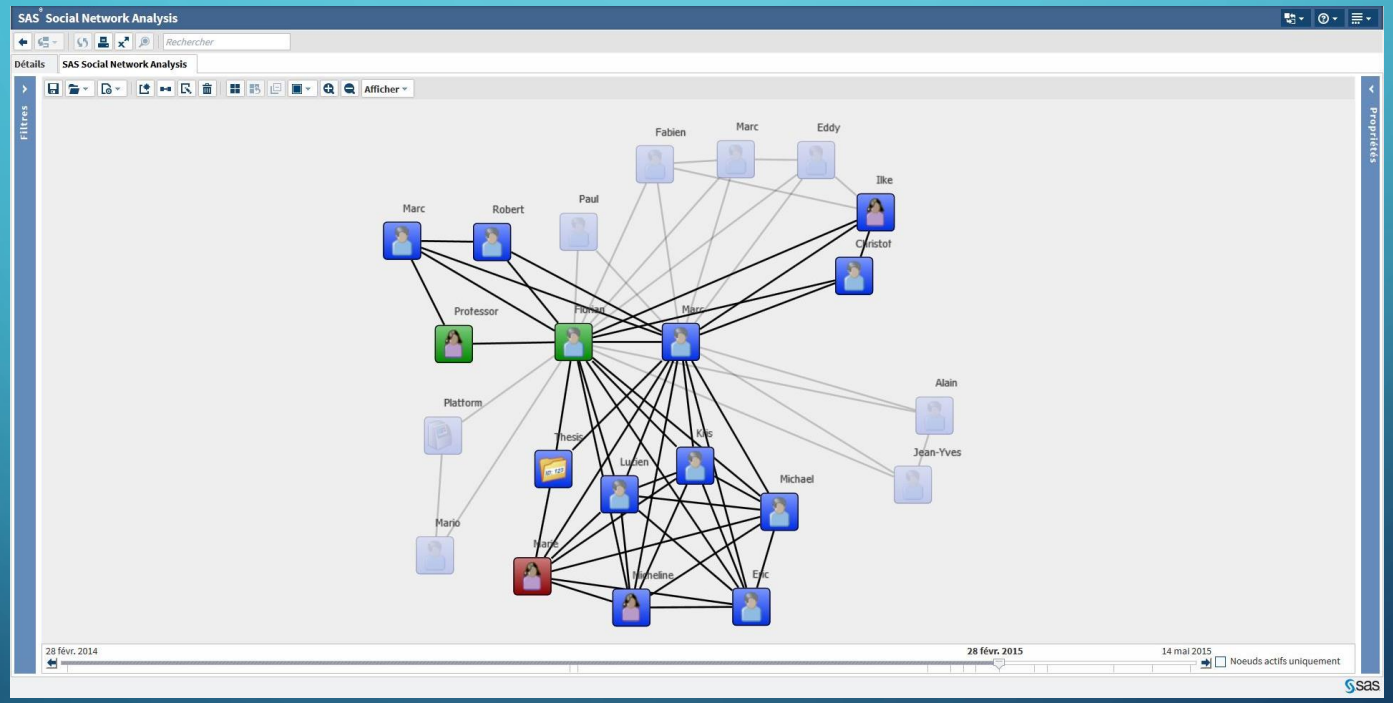
MEETING WITH FORENSICS



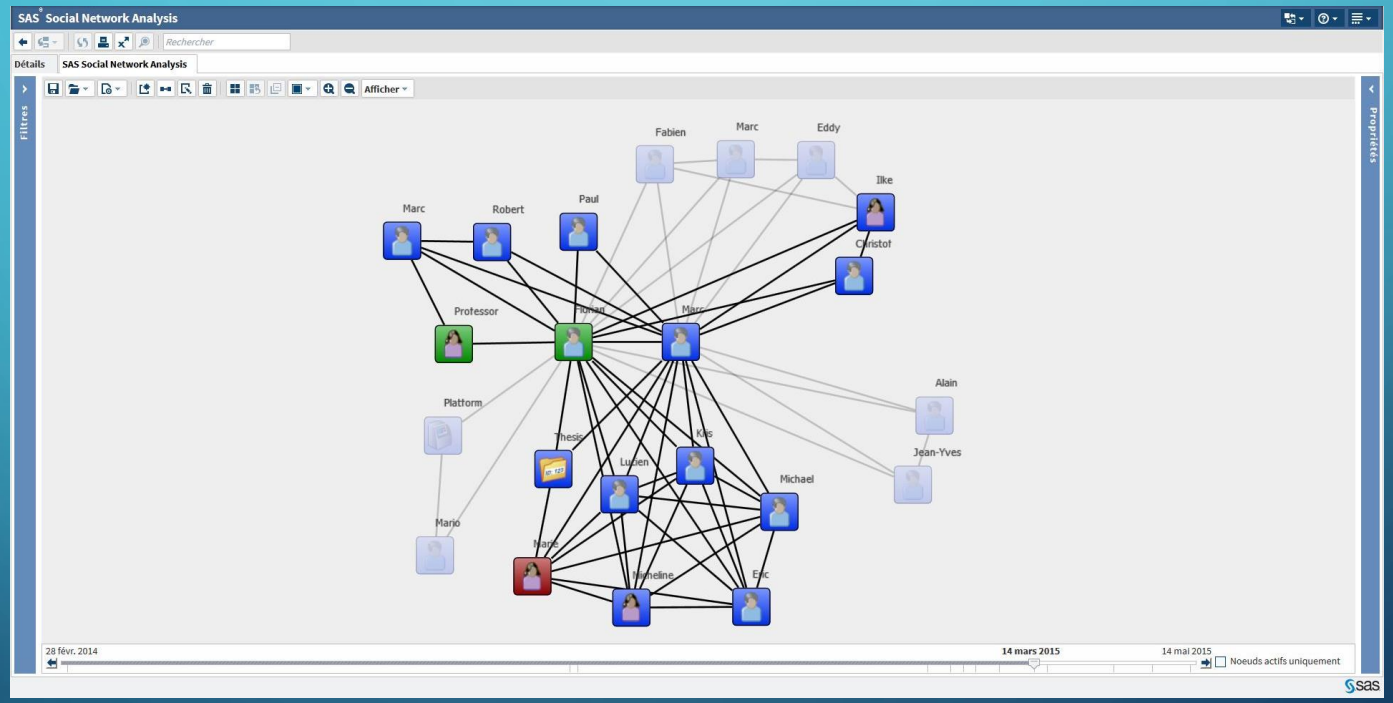
MEETING WITH COUNTER-TERRORISM



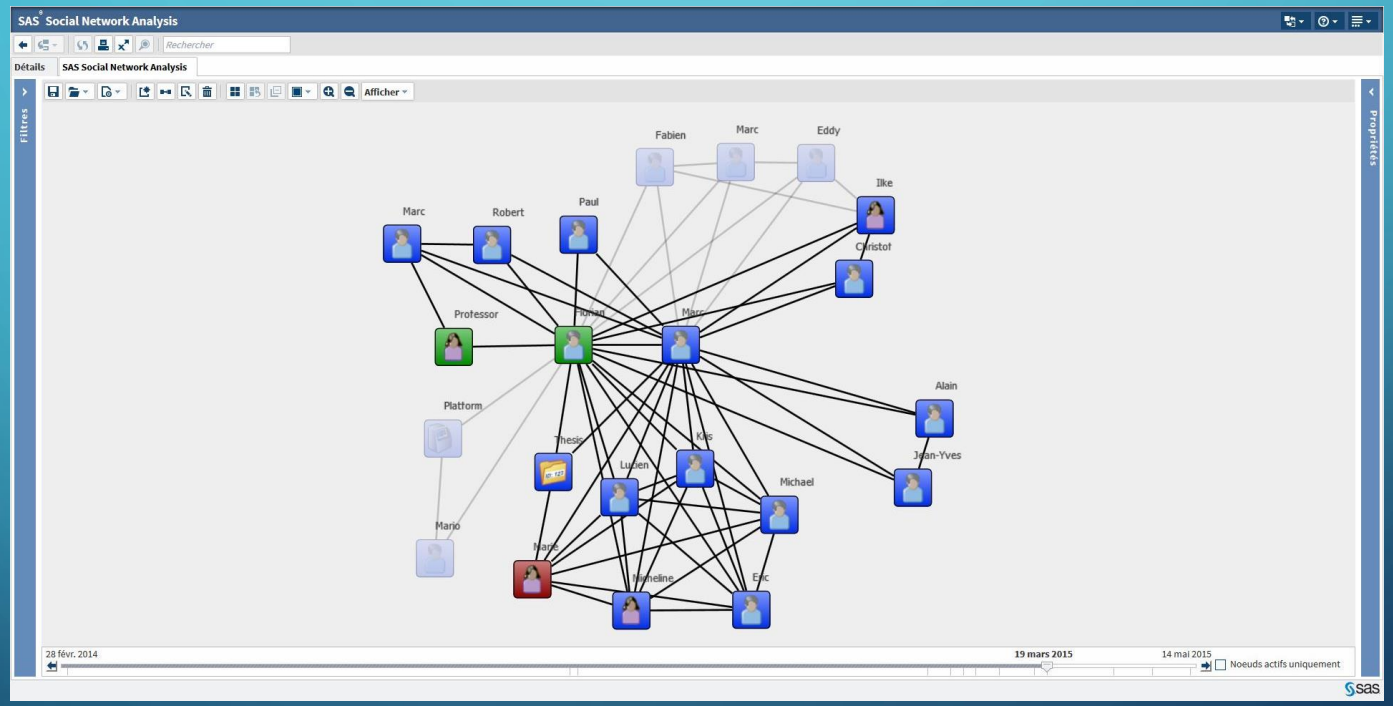
MEETING WITH A CRIMINAL ANALIST WORKING FOR TERRO



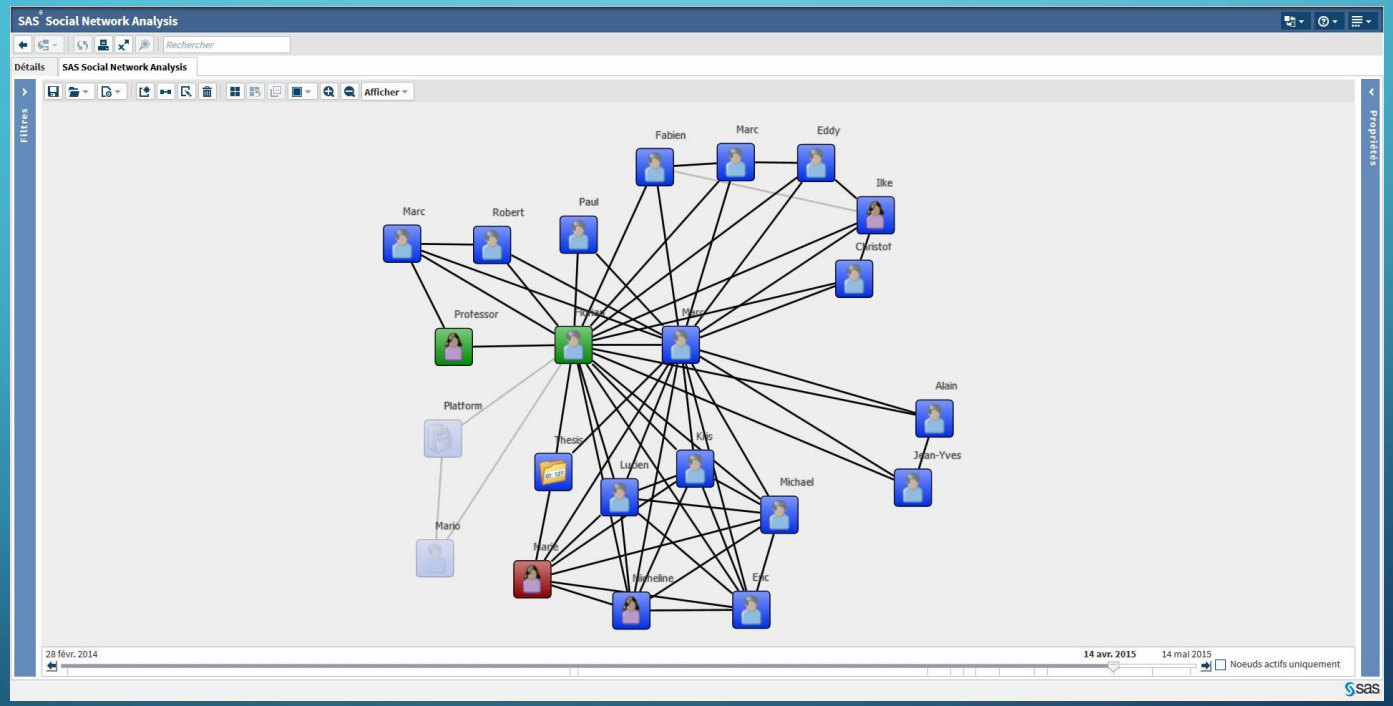
MEETING WITH IT OFFICIALS



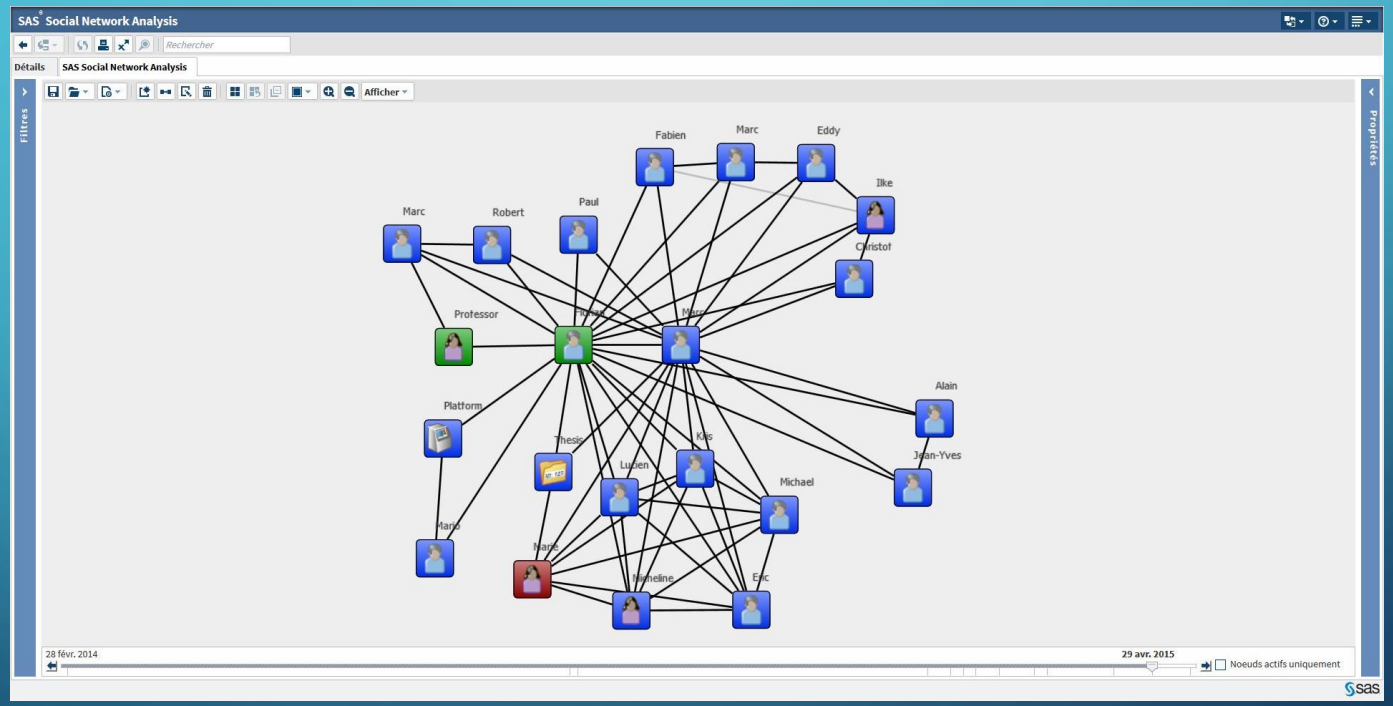
MEETING WITH CRIMINAL ANALISTS FROM NAMUR



MEETING WITH ORGANISED CRIME AND TERRO MANAGERS



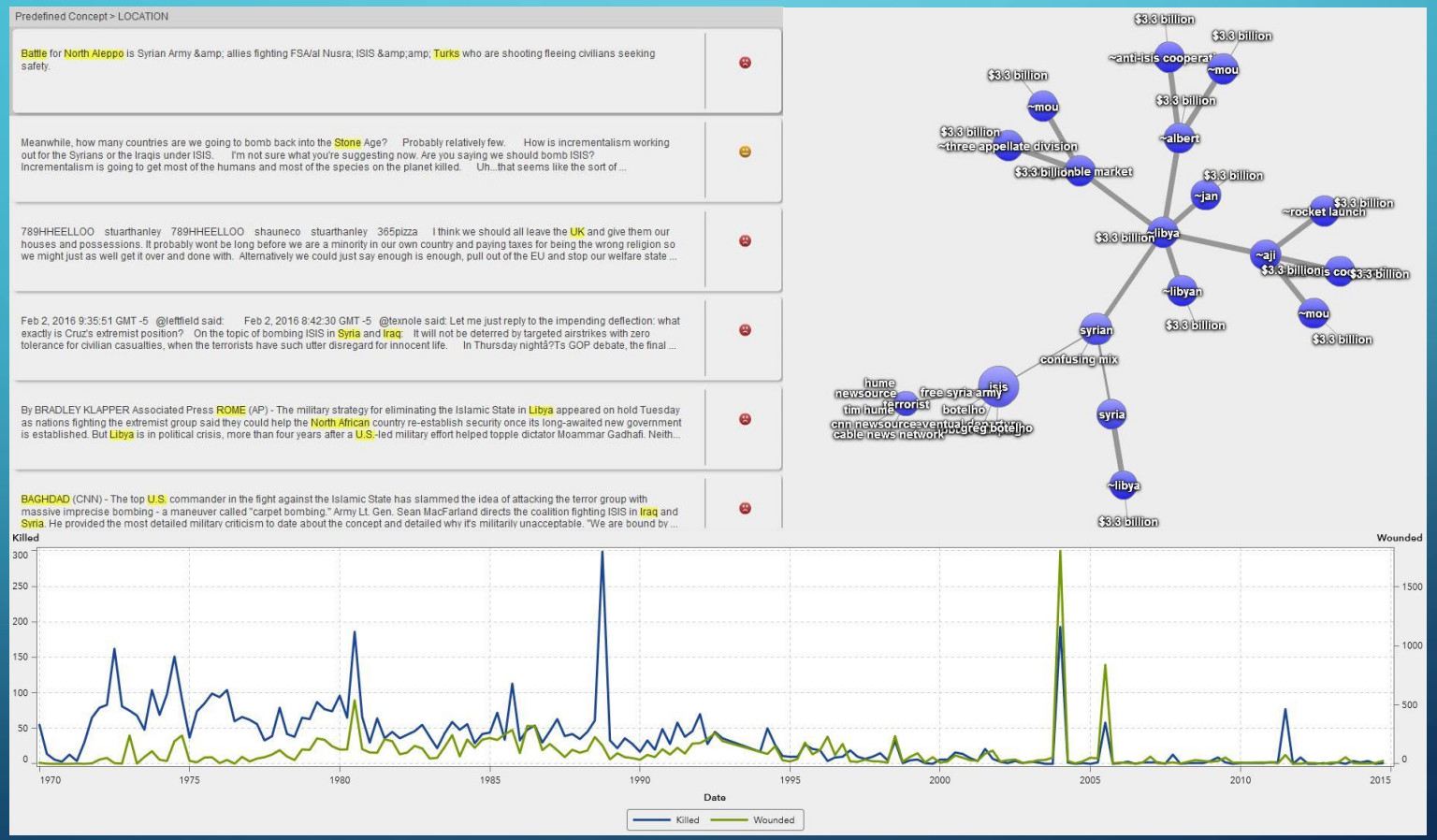
MEETING WITH ADMINISTRATIVE POLICE OFFICIALS (EVENT ORGANISATION)



OSINT

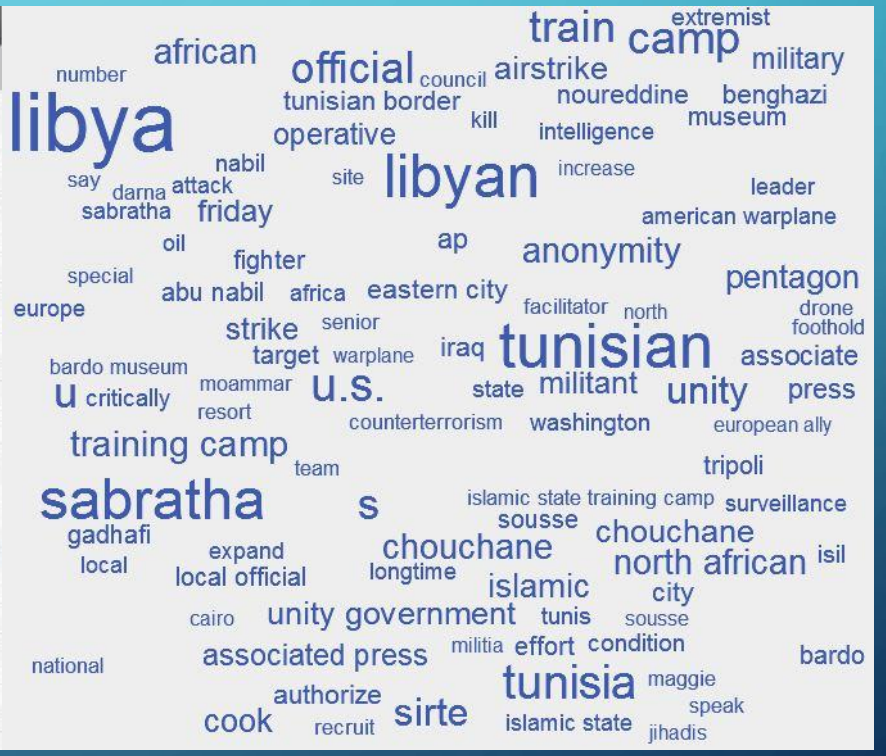
- What? using opensource information to support Police mission
- Why?
  - To get more information about people of interest
  - To follow people sentiments against events
  - To track and tackle radicalism
  - …
- How? By crawling the web and turning this huge amount of information in valuable information supporting Police objectives

OSINT

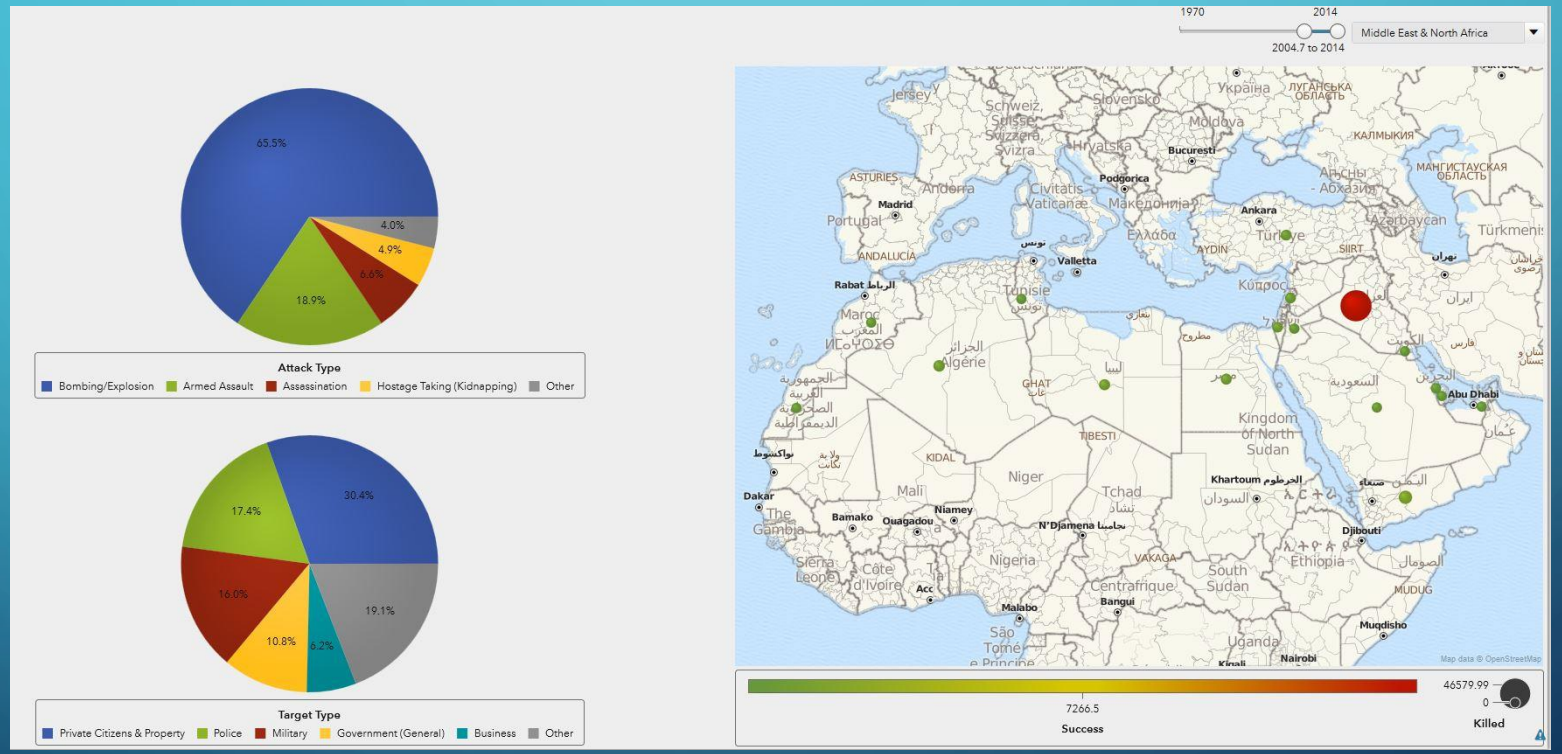

Predefined Concept > LOCATION
Battle for North Aleppo is Syrian Army & allies fighting FSA/al Nusra; ISIS & Turks who are shooting fleeing civilians seeking safety.
Meanwhile, how many countries are we going to bomb back into the Stone Age? Probably relatively few. How is incrementalism working out for the Syrians or the Iraqis under ISIS. I'm not sure what you're suggesting now. Are you saying we should bomb ISIS? Incrementalism is going to get most of the humans and most of the species on the planet killed. Uh...that seems like the sort of ...
789HHEELLOO stuarthanley 789HHEELLOO shauneco stuarthanley 365pizza I think we should all leave the UK and give them our houses and possessions. It probably wont be long before we are a minority in our own country and paying taxes for being the wrong religion so we might just as well get it over and done with. Alternatively we could just say enough is enough, pull out of the EU and stop our welfare state ...
Feb 2, 2016 9:35:51 GMT -5 @leftfield said: Feb 2, 2016 8:42:30 GMT -5 @texnole said: Let me just reply to the impending deflection: what exactly is Cruz's extremist position? On the topic of bombing ISIS in Syria and Iraq: It will not be deterred by targeted airstrikes with zero tolerance for civilian casualties, when the terrorists have such utter disregard for innocent life. In Thursday nightâ?Ts GOP debate, the final ...
By BRADLEY KLAPPER Associated Press ROME (AP) - The military strategy for eliminating the Islamic State in Libya appeared on hold Tuesday as nations fighting the extremist group said they could help the North African country re-establish security once its long-awaited new government is established. But Libya is in political crisis, more than four years after a U.S.-led military effort helped topple dictator Moammar Gadhafi. Neith...
BAGHDAD (CNN) - The top U.S. commander in the fight against the Islamic State has slammed the idea of attacking the terror group with massive imprecise bombing - a maneuver called "carpet bombing." Army Lt. Gen. Sean MacFarland directs the coalition fighting ISIS in Iraq and Syria. He provided the most detailed military criticism to date about the concept and detailed why it's militarily unacceptable. "We are bound by ...
$3.3 billion
~anti-isis cooperat*
~mou
~albert
~three appellate division
$3.3 billionble market
~jan
~rocket launch
libya
~aji
~libyan
~mou
syrian
confusing mix
hume
newsource
isis
free syria army
terrorist
tim hume
botelho
cnn newsource
cable news network
syria
~libya
Killed
Wounded
Date
Killed
Wounded

OSINT

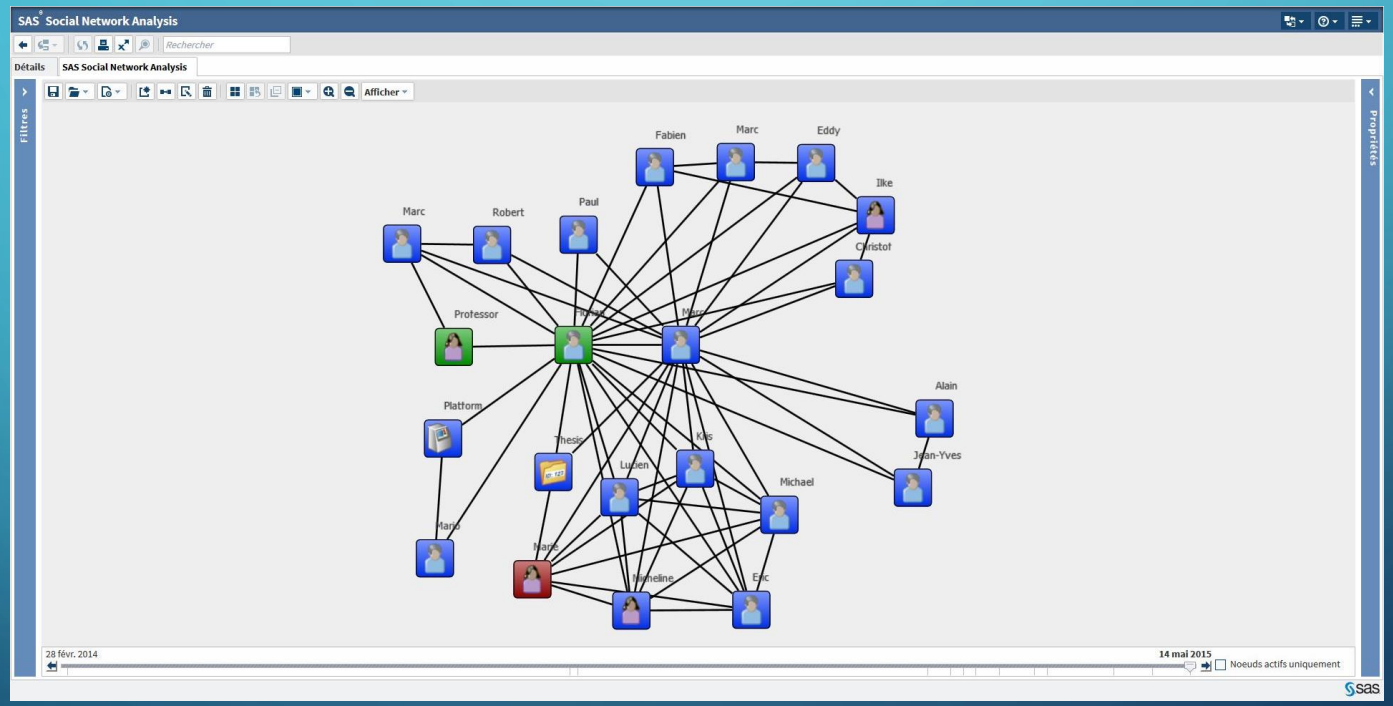
Topics	%	%	%
All Topics (49121)			
+cessation,+hostility,+ceasefire,+homs,+agreement	0	100	0
+tunisian,+tunisia,+sabratha,+libya,chouchane	0	100	0
sanders,+clinton,+candidate,+debate,+vote	2	97	1
cruz,+florida,rubio,+immigration,+trillion	0	99	0
assad,halfheartedly,+munich,kerry,+ceasefire	0	100	0
+christian,+deseret news,deseret,+genocide,+demetrios	0	100	0
+migrant,merkel,+refugee,+greece,eu	1	99	0
+salary,+price,+resident,+pay,+exile	0	100	0
+terrorist,isis,+suspect,+arrest,+terror	0	100	0
carter,+libya,+increase,+operation,$200 million	4	95	1
+saudi,+saudi arabia,+arabia,+troop,+kingdom	5	91	4
â,putin,â,+chechnya,+ukraine	0	100	0
+sirte,+jihadis,+militia,+tripoli,+hifter	0	100	0
sayyaf,mueller,+detainee,+interrogate,+detention	0	100	0
+turkish,+turkey,+kurdish,+ypg,+ankara	0	100	0



OSINT


65.5%
4.0%
4.9%
6.6%
18.9%
Attack Type
Bombing/Explosion
Armed Assault
Assassination
Hostage Taking (Kidnapping)
Other
30.4%
17.4%
16.0%
10.8%
6.2%
19.1%
Target Type
Private Citizens & Property
Police
Military
Government (General)
Business
Other
1970
2014
2004.7 to 2014
Middle East & North Africa
Success
7266.5
Killed
46579.99
0
Map data © OpenStreetMap

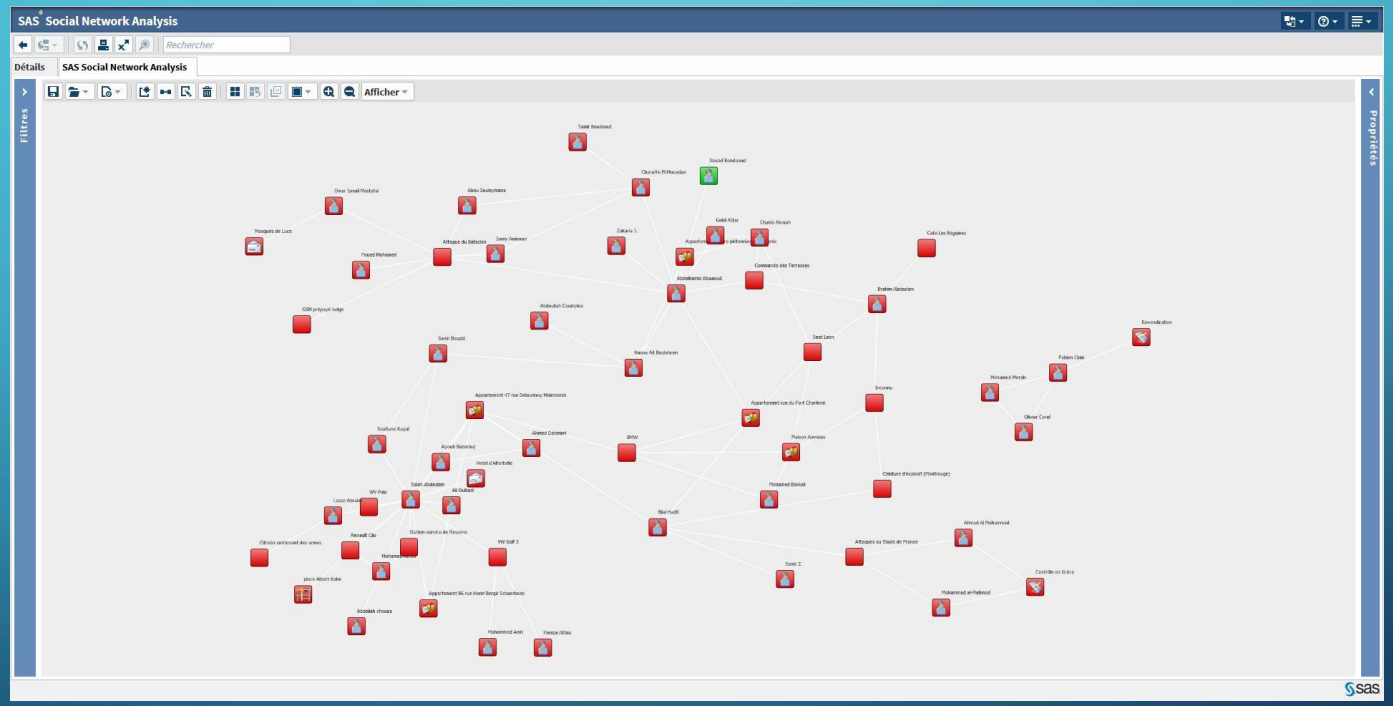
SNA : THE NICE STORY



SNA

- What? Analysis of interactions between people
- Why? Finding persons of interest in a network:
  - To find chiefs
  - To find network weaknesses
  - To throw alerts based on subnets risk rather than on individuals risk
  - …
- How? By using the social network analysis algorithms:
  - Centrality measures
  - Graph clustering
  - Integration with Data Mining and Text Analytics

SNA : THE SAD STORY



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- Examples :
  - Crime clustering
  - Opensource Intelligence (OSINT)
  - Social Network Analysis (SNA)

THANK YOU FOR YOUR ATTENDANCE