

The 5th CSIR
CONFERENCE
IDEAS THAT WORK
8-9 October 2015 | CSIR ICC

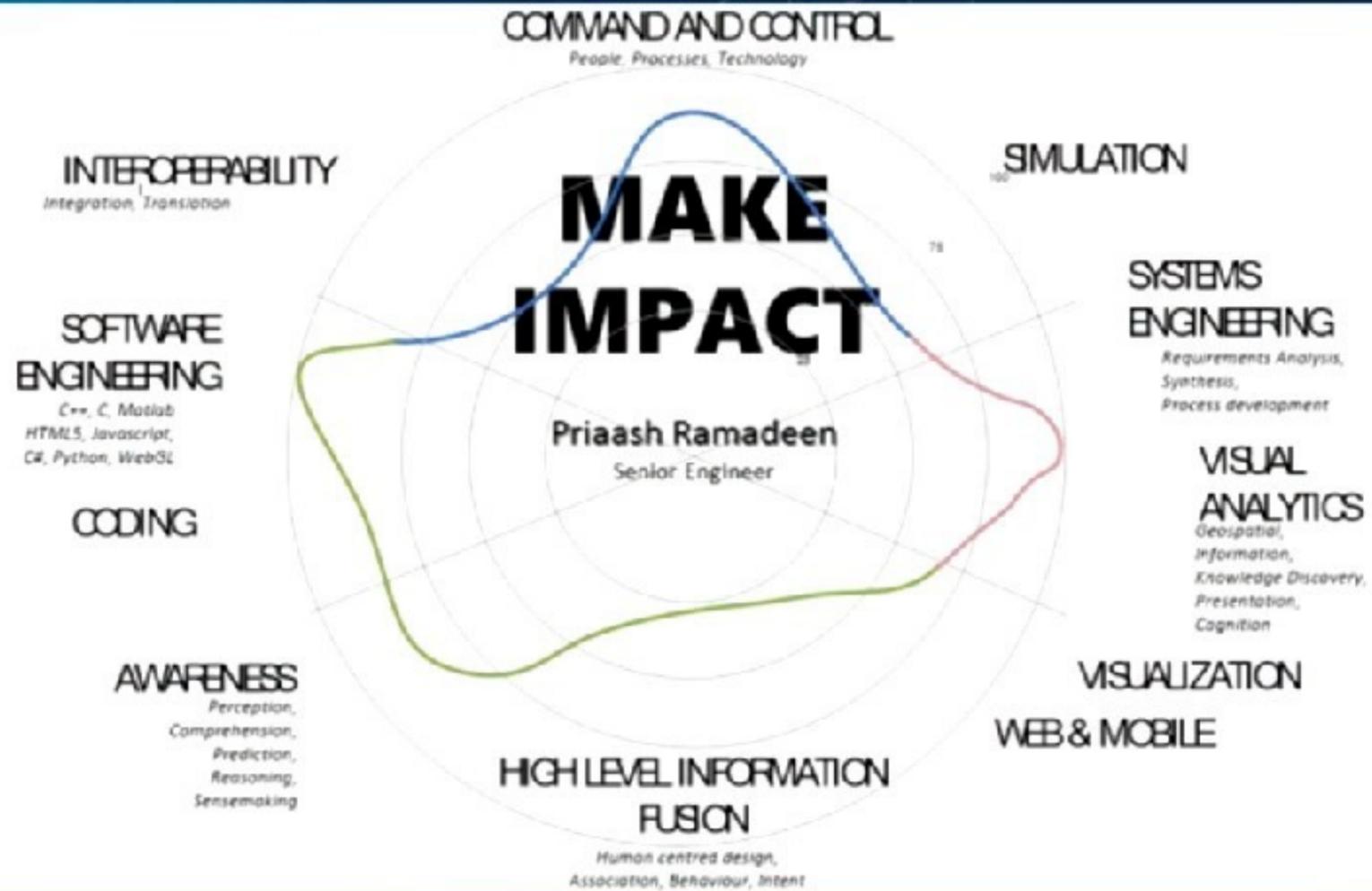
**Technology to combat poaching
From the lab to the park**

Priaash Ramadeen



What do I do?

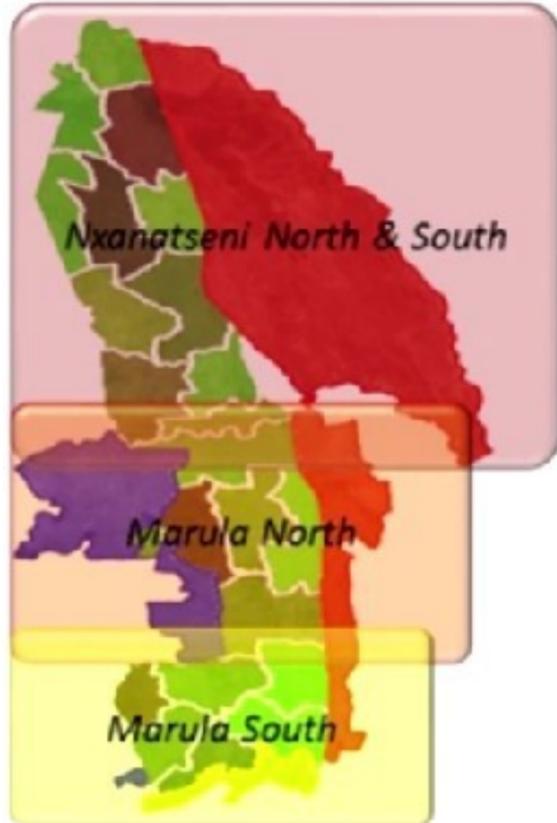
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Scourge of poaching

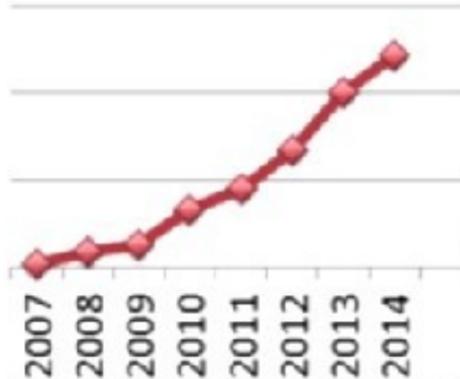
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Kruger National Park



- South Africa is home to an estimated 80% of the world's rhino population
- KNP is 2 million hectares in size
- KNP has the largest concentration of rhinos on the planet
- The KNP also shares a 450km South African border.

Rhinos Poached



Source: https://www.environment.gov.za/projects/programmes/rhinodialogues/poaching_statistics

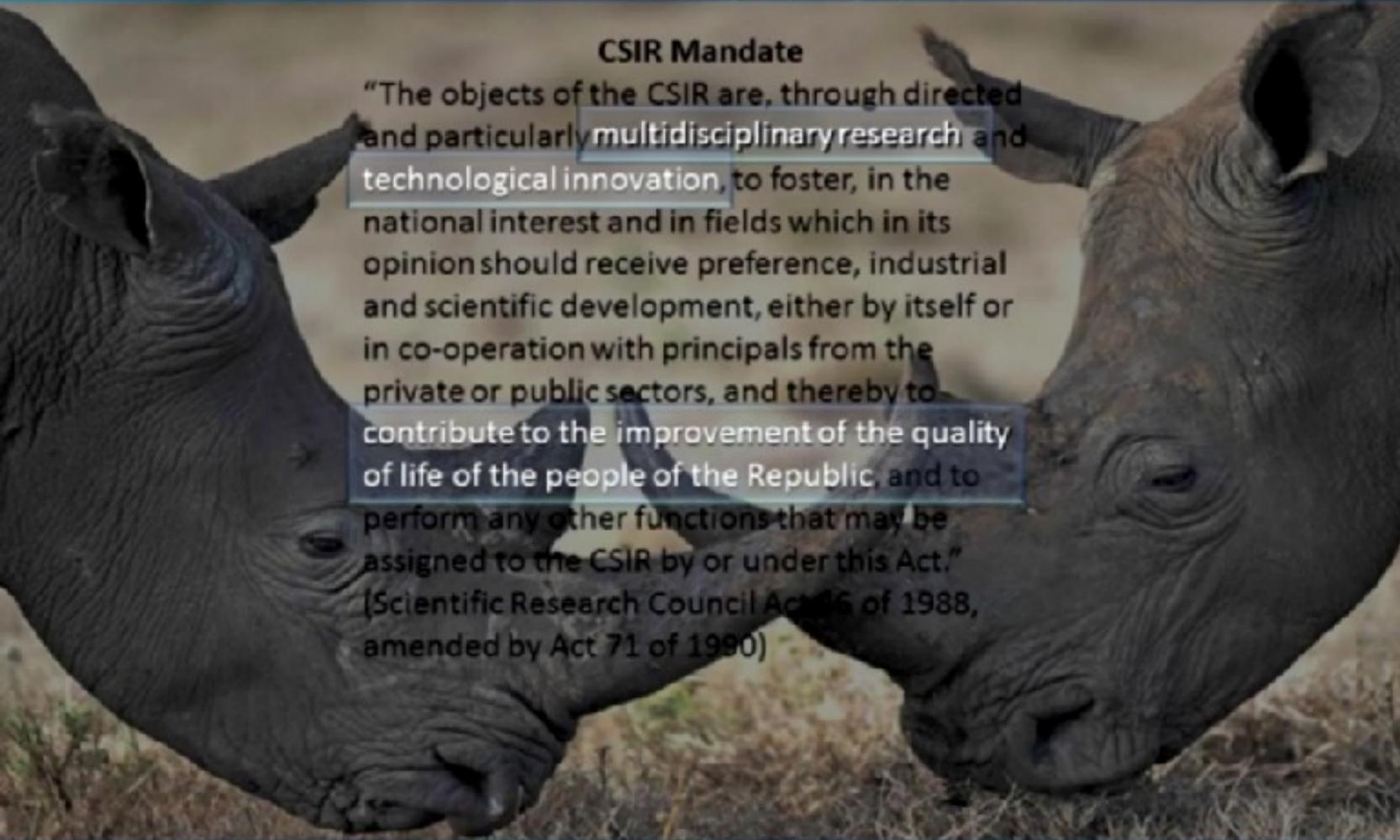


CSIR joins the fight against poaching

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CSIR Mandate

"The objects of the CSIR are, through directed and particularly **multidisciplinary research** and technological innovation, to foster, in the national interest and in fields which in its opinion should receive preference, industrial and scientific development, either by itself or in co-operation with principals from the private or public sectors, and thereby to **contribute to the improvement of the quality of life of the people of the Republic**, and to perform any other functions that may be assigned to the CSIR by or under this Act."
(Scientific Research Council Act 36 of 1988, amended by Act 71 of 1990)



From the lab to the park

cm^{ore}

- From concept
- To the lab
- To border safeguarding experimentation
- Towards CSIR safety and security
- To the park

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CSIR
our future through science

CELEBRATING
70 Years
Ideas that work



From concept

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In the very beginning the hypothesis of can we leverage modern technologies for command and control was posed to the scientists and engineers at the CSIR Smart Systems research group.



From concept

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AWARENESS

INTEGRATION

COLLABORATION

REAL TIME ANALYTICS

SHARED AWARENESS ECO-SYSTEM

In the very beginning the hypothesis of can we leverage modern technologies for command and control was posed to the scientists and engineers at the CSIR Smart Systems research group.



From the lab



Vision Idea Concept Event Requirement Need



Incident management - Confederations cup 2009

ICSIR VGD (\\configuration\scenarios\ConfedCup_2009\IncidentTracker.exe) - [IncidentTracker2 [SERVICE_INCIDENTTRACKER...]]

File | SaveView | Window | Help

Incident Tracker

Incident Parameters

Time: 14:14:29
 Date: 2009/07/05
 Callsign: 999
 Priority: Low Medium High
 Status: New Assigned Resolved
 Description:
 Resource:
 Location(Point): lat(-25.7597, 27.8996, 1158.39)
 Location(Tracks):
 Location(Area):
 Actions:
 Owner: Na00C-OPS_ROOM

Incident List

SerialNumber	Description	Status
ggg200907061...		New
bravo20090706...		New

sim time: 2973.64s

Resources

Tracks

Assigned Track Resources:

Available Track Resources: 2544-apds

Text Resources

Assigned Resources:

Available Resources:

- New resource
- NW: SRT
- NW: Mod 1
- NW: MTH 2 (Dryx)
- NW: MTH 1 (Dryx)
- NW: LUH (Augusta)
- NW: Company HQ
- NW: Company
- NW: C208
- G: SRT 2
- G: SRT 1
- G: Mod 2

Track Selections

Resource Manager

Enter a resource:

CView Ver. 1.015 [Mar 2 2009 11:41:08] - Developed by the CSIR

Window | Help | View

FOV: 30 | FPS: 40 | GeoZoom: 1

Time: 00:40:30.60 (2009/07/05)

Incident management - Confederations cup 2009

Resource Grid

Callsign	Description	Track	Template
<input type="button" value="Add Resource"/> <input type="button" value="Undo Last Delete"/>			

Update Incident

Callsign:

Priority: Low Medium High

Status: New Assigned Resolved

Description:

Incident Grid

Serial	Callsign	Time created	Time assigned	Time resolved	Priority	Status	Description	Resources Assigned	Location Description	Location Coordinate
2	HLR_I2	2009-09-29 08:09:36.425452	None	None	High	New	HLR_D2		HLR_I2	✓
1	11(HLR)	2009-09-28 15:27:19.557820	None	2009-09-29 08:52:04.740591	Medium	Resolved	HLR_TEST		TEST	✓

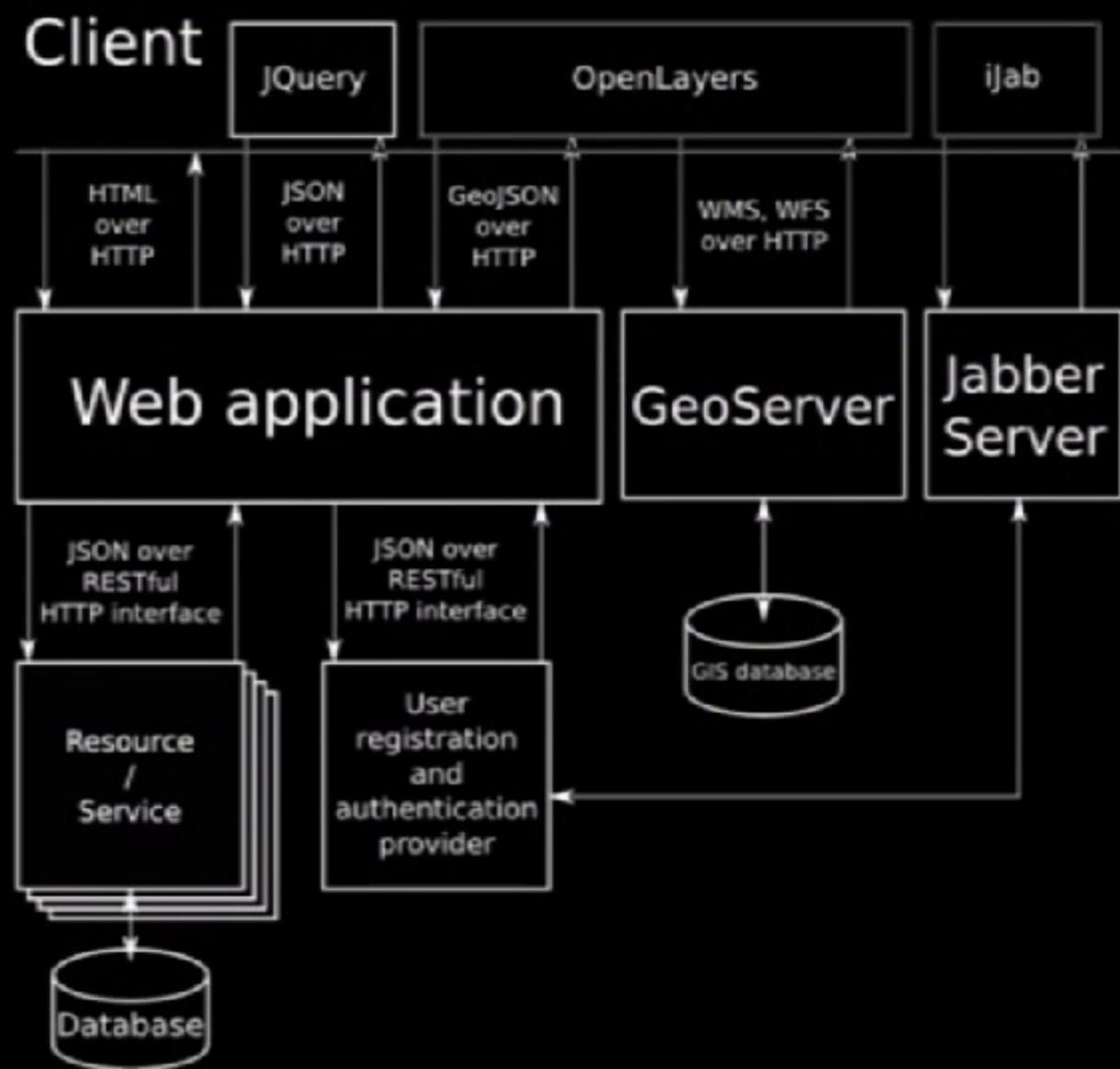
Main Grid

HLR_I2

MapView3

MapView3 window showing a map of Johannesburg with several incident markers (yellow triangles with call signs like 1679, 2838, 2896, 2791, 2841, 1747, 2816, 1588, 3361, 2486). The map includes a scale bar (1km, 2km), a compass, and various control buttons: Update, Clear, Historical Length (10), All (Frame 880230), Incidents, New, Coordinates, Track Speed, Set, Hov, Fil, Height, Measure, Incident Speed, Dist, Icons (1.0).

Web based



Joint command and control portal architecture

Incident detail

146.64.254.7/app/incidents/show/1

Incidents gallery home logout

Incident: TEST_1

TEST_1_DESCR

Some other attributes

Recent images:
View all (0 images)
Upload image

Observers:

test

herman

Feed:

test says
"Ha!boooo"
posted on Wednesday 02 March 2011 at 11:25:45

test says
"Cheers"
posted on Wednesday 02 March 2011 at 11:25:41

test says
"Cheers_3"
posted on Wednesday 02 March 2011 at 11:25:38

test says
"Test_2"
posted on Wednesday 02 March 2011 at 11:24:51

Post

Waiting for 146.64.254.7...

Chat

11:26 AM
2011-03-02

Joint command and control portal

User: test
Upload picture

Recently uploaded images:
View all (0 images)
Upload image

Observed Incidents:
TEST_1

Actions
Create Incident
Create Task

Feed

test created a new task
<http://146.64.254.7/resources/worklist/worklists/show/0/1>
<http://146.64.254.7/resources/authentication/account/users/0>
posted on Wednesday 02 March 2011 at 11:40:29

test says
"
"
posted on Wednesday 02 March 2011 at 11:31:16

test says
"HOME_FEED_TEST_1_kpdyd"
posted on Wednesday 02 March 2011 at 11:31:15

test says
"
"
posted on Wednesday 02 March 2011 at 11:30:27

test says
"TEST_1_INCIDENT_FEED_CHAT"
posted on Wednesday 02 March 2011 at 11:30:24

test says
"soo"
posted on Wednesday 02 March 2011 at 11:29:43

test says
"Hallo_TEST_123"
posted on Wednesday 02 March 2011 at 11:29:40

test says
"En daar?"
posted on Wednesday 02 March 2011 at 11:29:00

Page 1 > 1 2

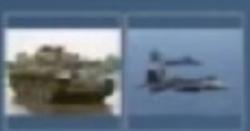
Work List

HERMAN TASK TEST_1_TITLE
posted on Wednesday 02 March 2011 at 11:40:29

User: admin



Recently uploaded images:



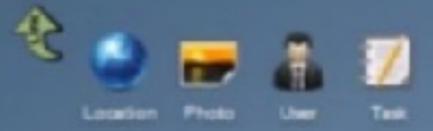
Observed Incidents:

alpha
BREACH445

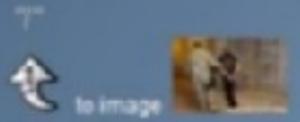
Online Users:

User Feed:

Post



admin says



posted on Friday 26 August 2011 at 12:08:12

admin says



posted on Thursday 25 August 2011 at 16:53:06

admin says



posted on Thursday 25 August 2011 at 16:52:06

admin updated task Approve leave

Work List:

Deploy the troops
posted on Thursday 25 August 2011 at 16:46:19

Create a flight plan
posted on Thursday 25 August 2011 at 16:46:36

Social networking influence



Compass Status: **successful**
 Geolocation Status: **successful**

Position LLA: -25.75792° / 28.28103° / 1452.7393347431587 m
 Accuracy: -4 m
 Heading: 179.8496856689453°
 Speed: 0 m/s

Destination LLA: -25.75714° / 28.28076° / 1473.908336582206 m
 Destination Azimuth (θ): -17.7863°
 Compass Heading (φ): 342.6°
 θ - φ: -0.4123°
 Distance to Target: **90.3 m (t4)**

Peers

Refresh Positions

User-ID: Latitude / Longitude (Timestamp)

- 1: -26.08° / 27.02° (Thu, 27 Jun 2012 04:00:00 GMT)
- 2: -25.7562589° / 28.2805228° (Thu, 28 Jul 2012 08:41:12 GMT)
- 3: -28° / 28° (Thu, 27 Jun 2012 04:00:00 GMT)
- 34: -27.14° / 27.83° (Thu, 27 Jun 2012 04:00:00 GMT)
- 99: -27° / 27° (Thu, 28 Jun 2009 16:38:51 GMT)
- 111: -25.756477° / 28.2804633° (Thu, 28 Jul 2012 18:18:50 GMT)
- 222: -25.7563208° / 28.2805078° (Thu, 12 Jul 2012 14:12:17 GMT)

Peers

Refresh Positions

User-ID: Latitude / Longitude (Timestamp)

- 1: -26.08° / 27.02° (Thu, 27 Jun 2012 04:00:00 GMT)
- 2: -25.7562589° / 28.2805228° (Thu, 28 Jul 2012 08:41:12 GMT)
- 3: -28° / 28° (Thu, 27 Jun 2012 04:00:00 GMT)
- 34: -27.14° / 27.83° (Thu, 27 Jun 2012 04:00:00 GMT)
- 99: -27° / 27° (Thu, 28 Jun 2009 16:38:51 GMT)
- 111: -25.756477° / 28.2804633° (Thu, 28 Jul 2012 18:18:50 GMT)
- 222: -25.7563208° / 28.2805078° (Thu, 12 Jul 2012 14:12:17 GMT)

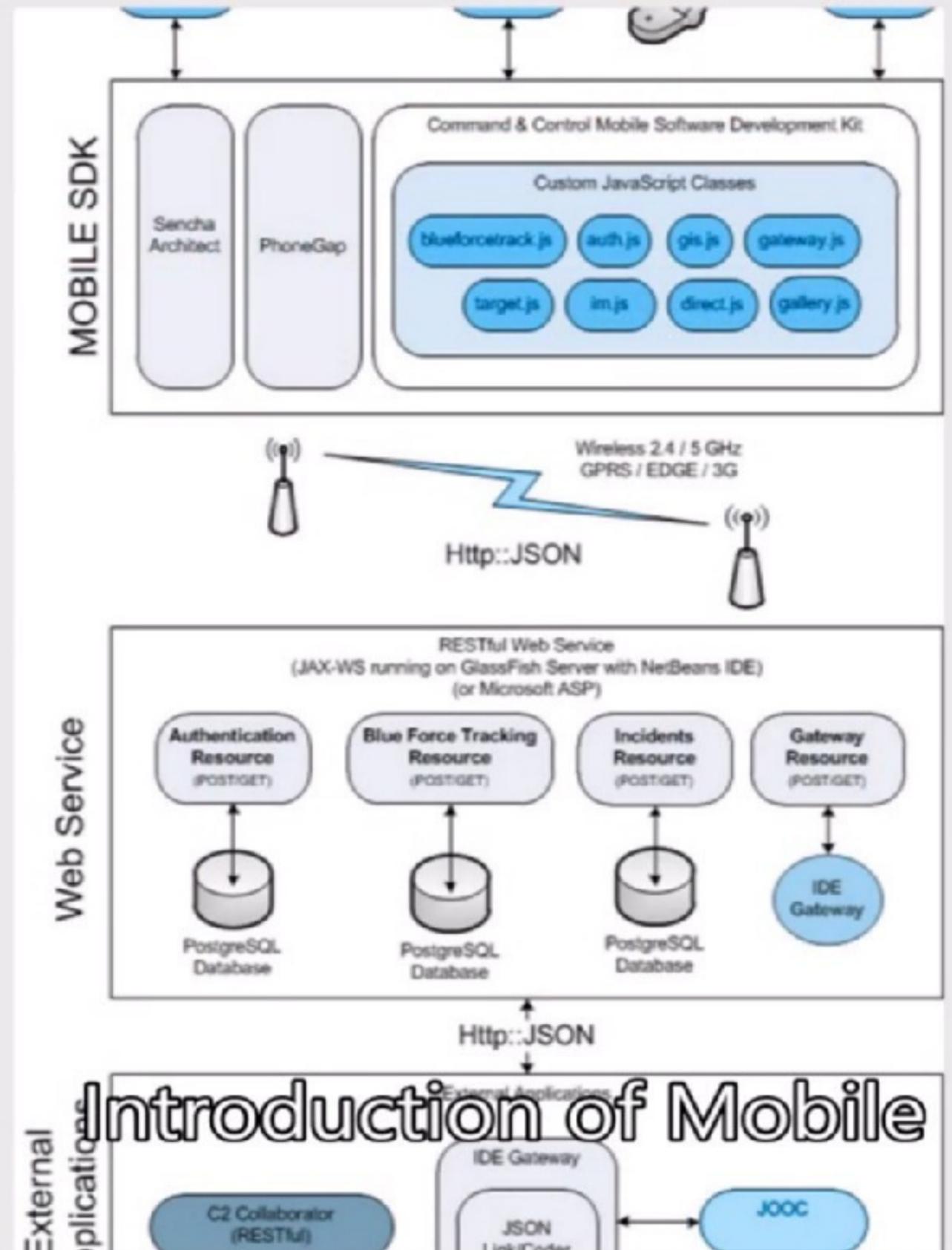


Send Picture

From Album | From Camera

Short Description:

Upload



Introduction of Mobile

C3 Command and Control Collaborator

Image uploaded by ali
Linked to location
uploaded on 25 July 2012 at water

View Selected Location close

jet map incidents gallery users workflow home logout

Department Of Science and Technology

Kepemal Street

Swerick Street

Carlington Road

Casa Toscana

Mobile image and geo location
uploaded to C2 collaborator

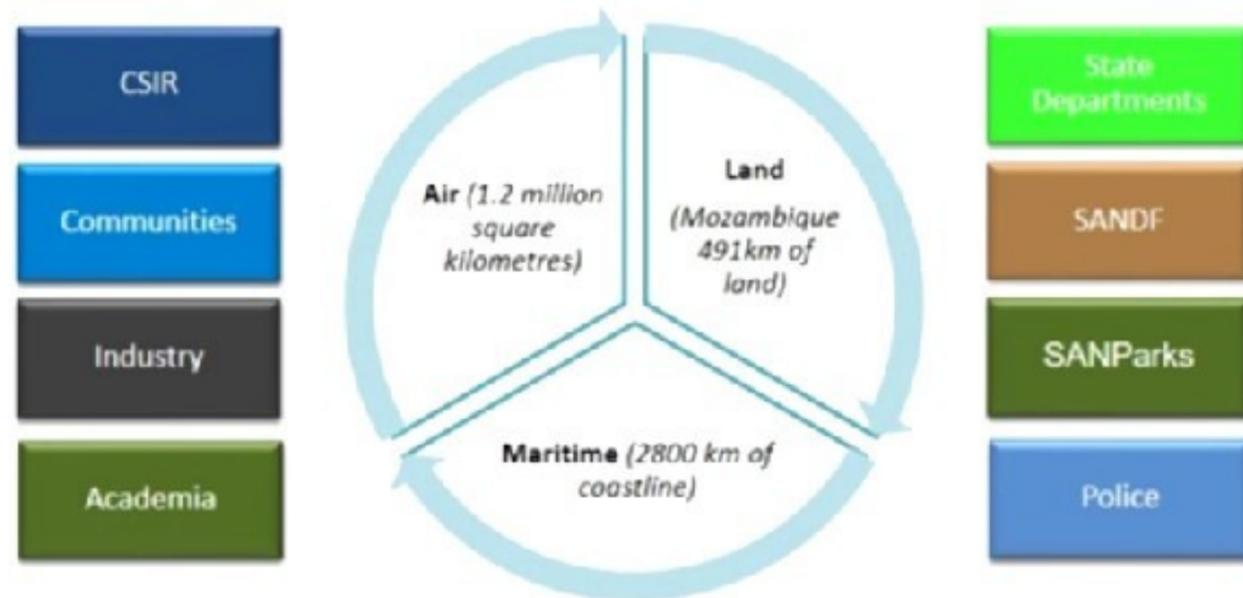
To border safeguarding experimentation

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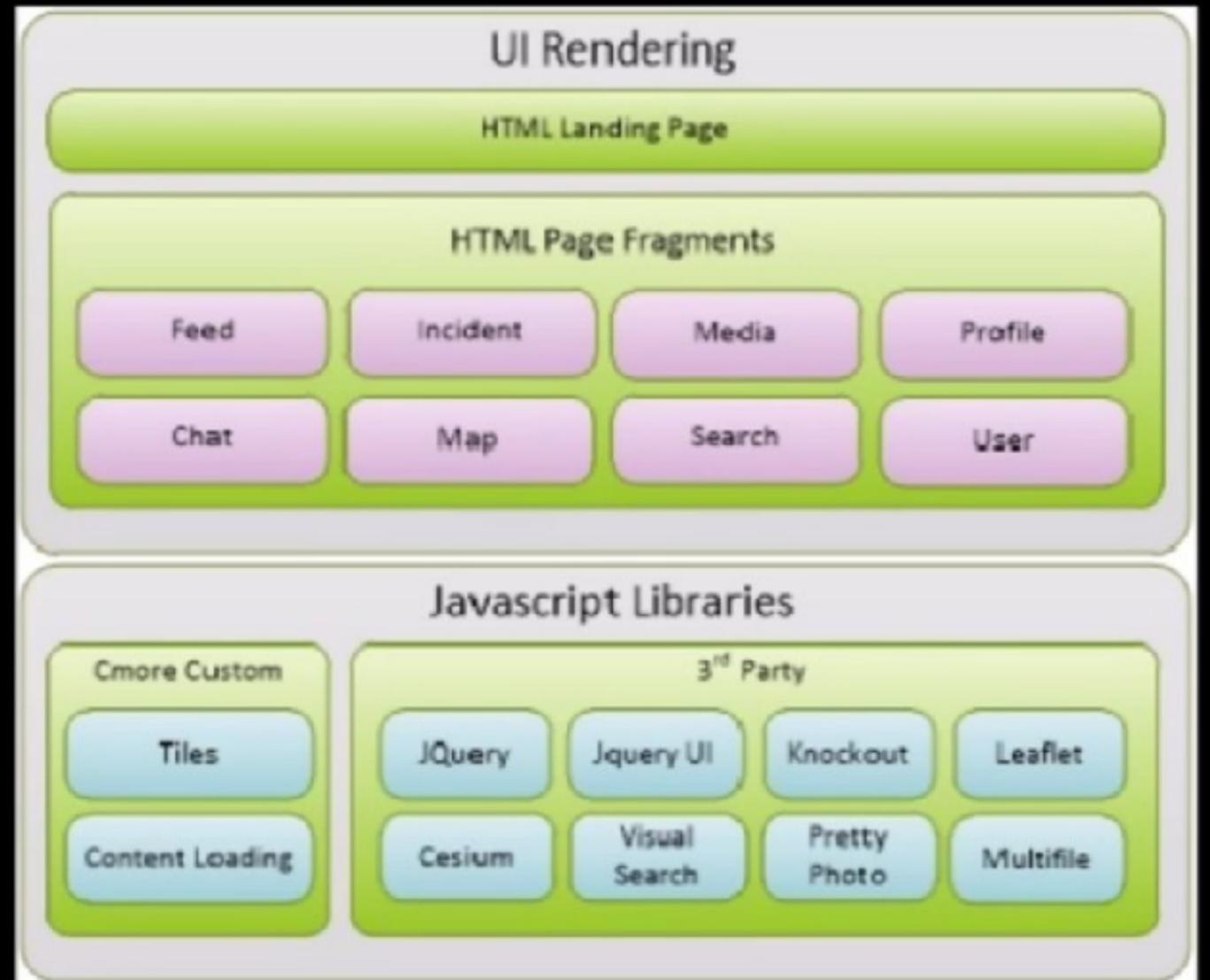
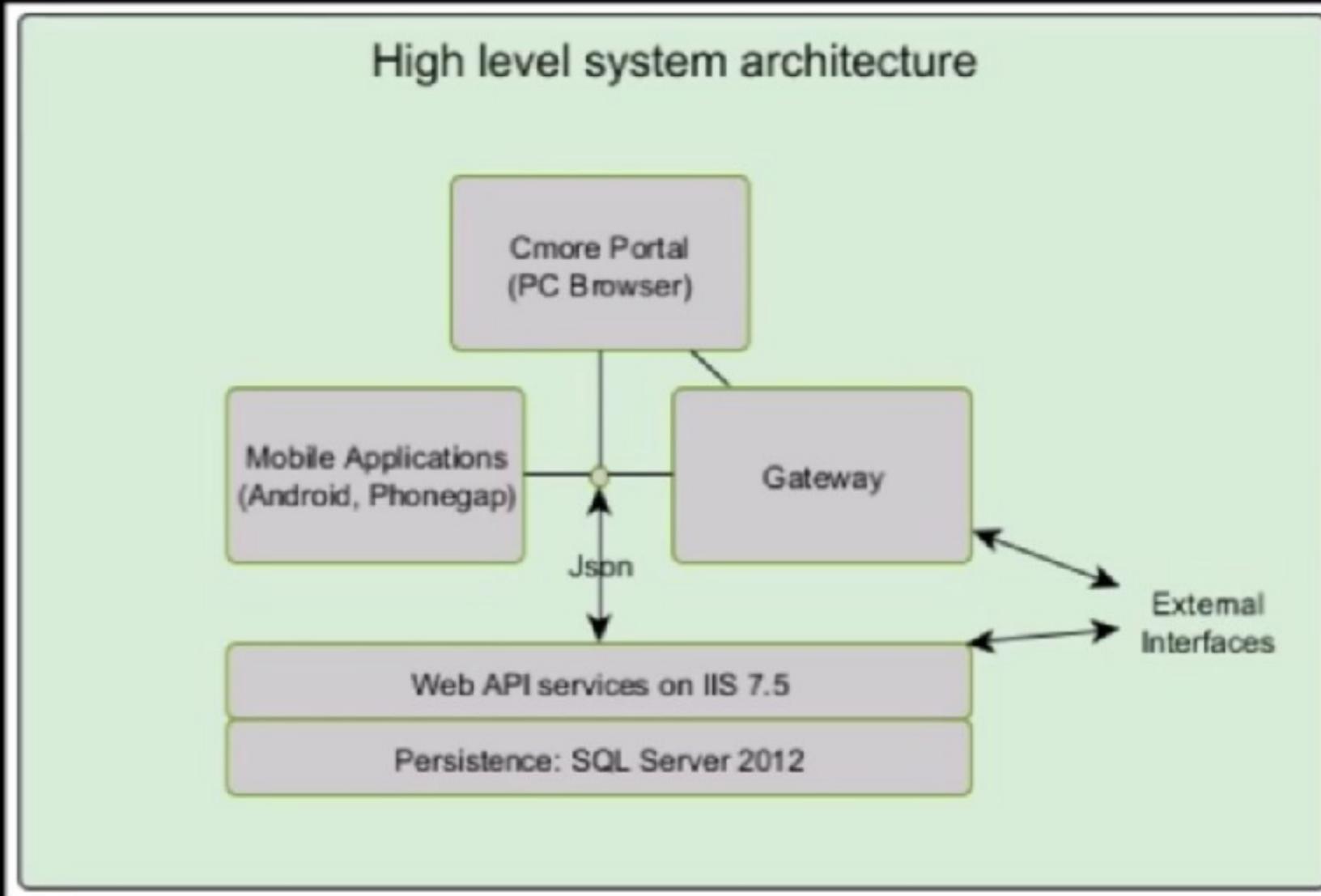
Practical Situation Awareness and Decision Support

- Immediate Environment Display
- Blue Force Tracking
- Target Positioning and Information Gathering
- Direct and Guide Blue Forces
- Perimeter Notification
- Control Room Support



Introducing Cmore





First cmore architecture November 2012

Profile

Incidents

Media

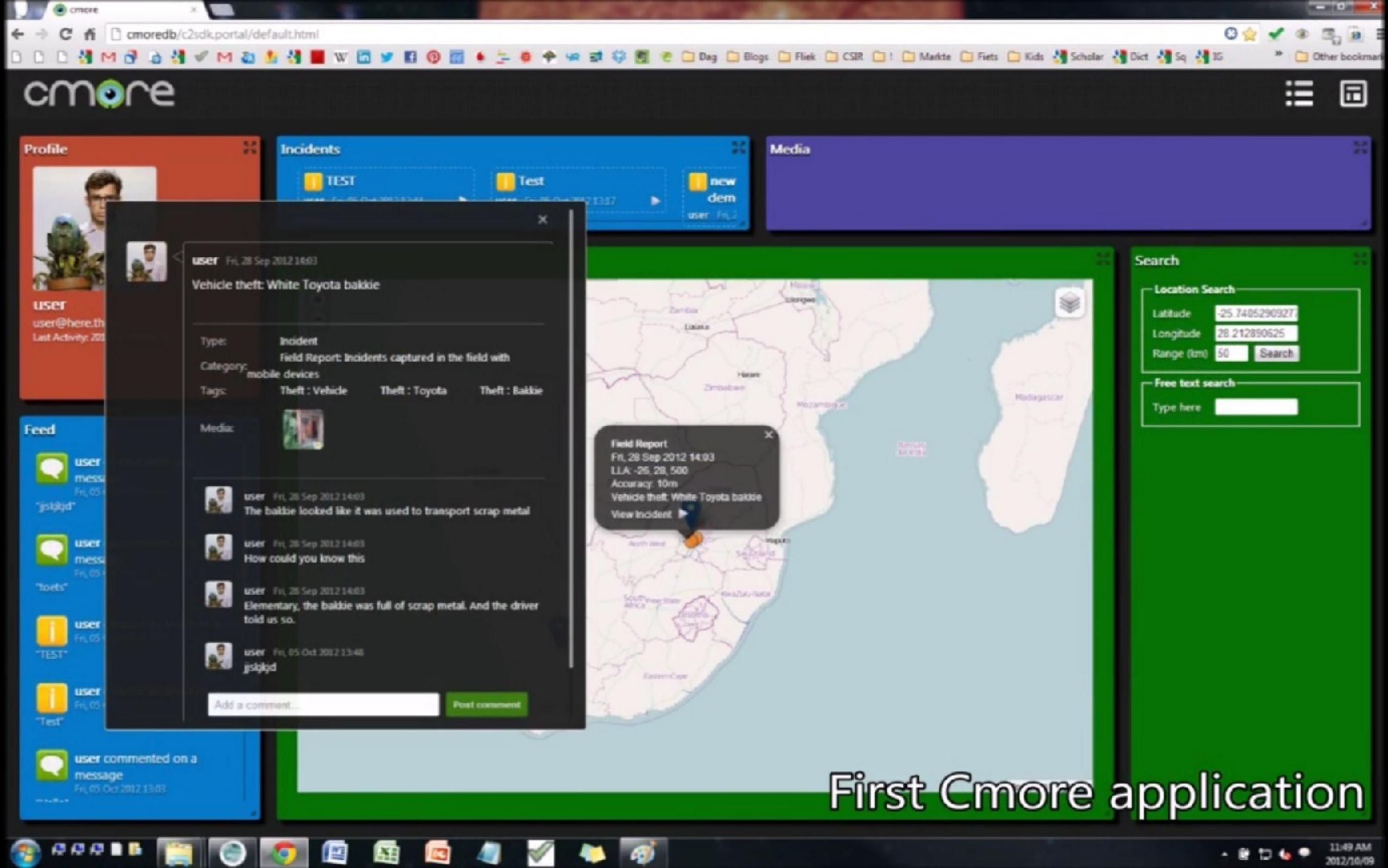
Feed

- user commented on a message
Thu, 13 Sep 2012 14:49
"oops double posted"
- s3 created an Incident
Thu, 13 Sep 2012 14:48
"Met piet vandag"
- s3 created an Incident
Thu, 13 Sep 2012 14:38
"Met piet vandag"
- s3 created an Incident
Thu, 13 Sep 2012 14:35
"I have done it! CREATING A INCIDENT on my mobile..."
- user commented on a message
Thu, 13 Sep 2012 14:06

Map

A map of South Africa showing various cities and provinces. Three incident markers are visible in the southern part of the country, near Cape Town. The markers are blue and orange. The map is powered by Leaflet.

Search



First Cmore application

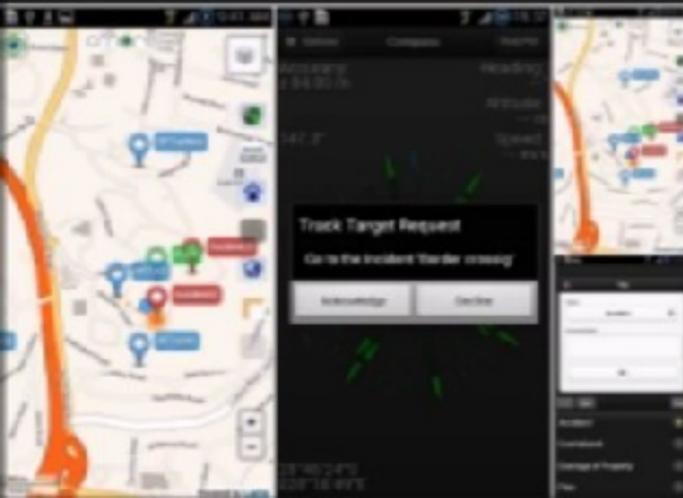
TAGS: Entries: 1
Misconduct Drunk

DESCRIPTION OF INCIDENT
Johan was caught drunk on duty

REMARKS / ACTION TAKEN
Notified him of disciplinary hearing

Category: Admin
Timestamp: Wed Oct 10 2012 08:15:21 GMT+0200 (CAT)

MEDIA: Entries: 0



DESCRIPTION OF INCIDENT
Discovered UFO at the bordercrossing.
Uncertain who is flying the UFO.

REMARKS / ACTION TAKEN
Sent Bob to investigate. Has not yet reported back.

Category: Field Report
Timestamp: Wed Oct 10 2012 09:19:50 GMT+0200 (CAT)

MEDIA: Entries: 2

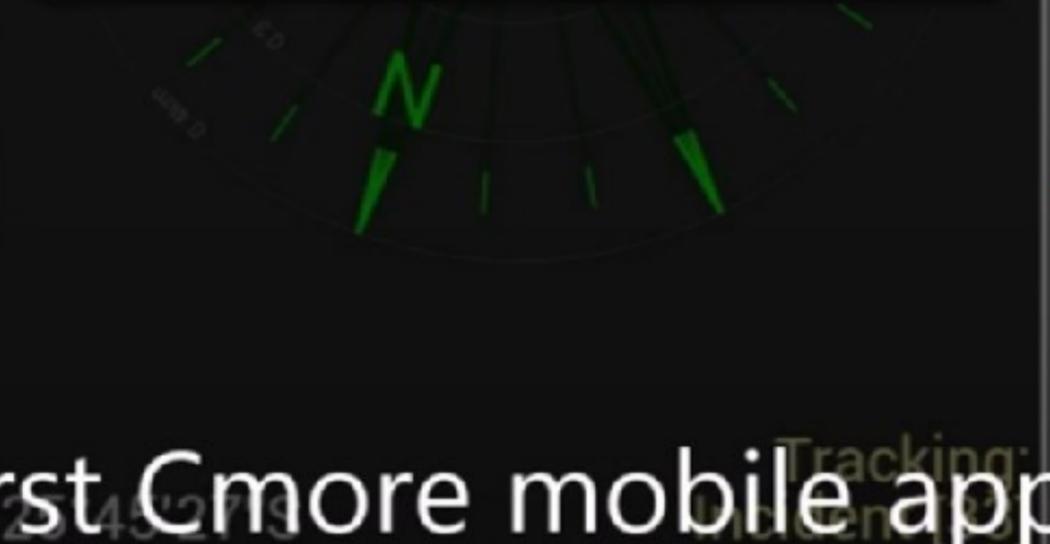
Attempted to take picture of ufo but no success.
Wed Oct 10 2012 09:19:51 GMT+0200 (CAT)

Ufo radar profile
Wed Oct 10 2012 09:20:23 GMT+0200 (CAT)

Accuracy: ± 32.00 m
Distance: ±81.92 m
160.7°
Heading: --
Altitude: 1459.07 m
Speed: -- m/s



Proximity Alert!
Distance: 0.082km
'Someone stole my house'
ok



Messages: lkl, meow, shazia, highlight, im saying something

Accuracy: ± 70 m
Distance: ±142.22 m
310.3°
Heading: --
Altitude: -- m
Speed: -- m/s



Experiment Musina



Introducing collaboration in cmore - Pretoria 2012



Requirements of conferencing and annotating

A man in a striped shirt and glasses is seen from the side, interacting with a large SMART interactive whiteboard. The screen displays a collaborative workspace. At the top, there are two video feeds: one labeled 'Tac_HQ' showing a man in a blue shirt, and another labeled 'CSIR PTA' showing a man in a white shirt. To the right of the video feeds is a browser window showing a 'Default.html' page. Below the video feeds is a 'Map' application. The map shows a network of roads and buildings, with blue lines and red arrows indicating movement or flow. On the left side of the screen, there is a sidebar with various tools and a 'Feed' section. The tools include 'Cursor', 'Pen', 'Erase', and 'Capture'. The 'Feed' section shows a list of updates, including 'Minrie van', 'Latest Chats', and 'Feed' with various icons and text. The SMART logo is visible in the top left corner of the whiteboard frame. A camera is mounted on top of the whiteboard.

Introducing a distributed platform - Polokwane 2012

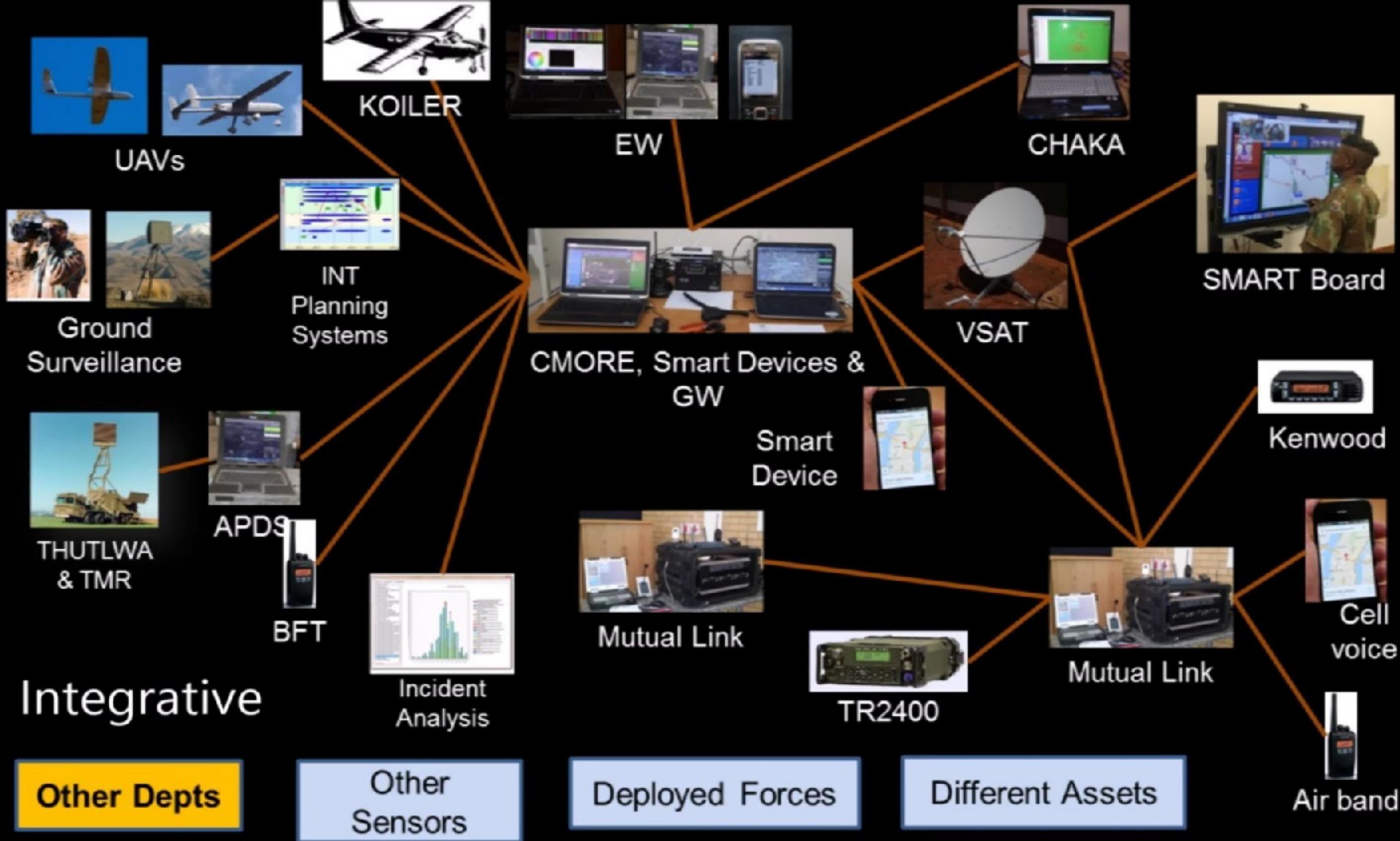
Experiment Macadamia

Experiment Macadamia

The image shows an indoor space, likely a laboratory or classroom, with a corrugated metal ceiling and fluorescent lighting. A person in a white shirt and blue pants is standing at a table, possibly conducting an experiment. There are other people in the background, and various pieces of equipment and boxes are visible on the tables. The text "Experiment Macadamia" is overlaid on the image.



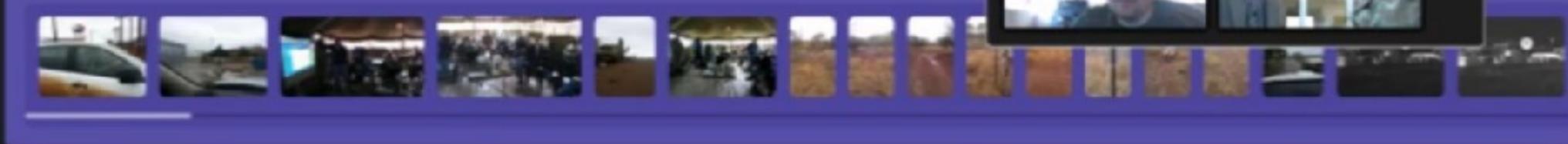
Experiment setup - Macadamia October 2013



Messages

- Suspect spotted buying food. Hope his not there to rob the shop moments ago
- Suspect spotted driving 4 minutes ago
- Suspect spotted coming out of cashbuild 8 minutes ago
- Demonstration to Gen Smith 10 minutes ago
- Demonstration to Gen Smith 12 minutes ago
- Radar deployed 21 minutes ago
- Mac setup 24 minutes ago
- Ex1 24 minutes ago
- Border Fence Patrol 44 minutes ago
- Photo crew on the move an hour ago
- Dss working hard 17 hours ago
- Fw setup at sub B

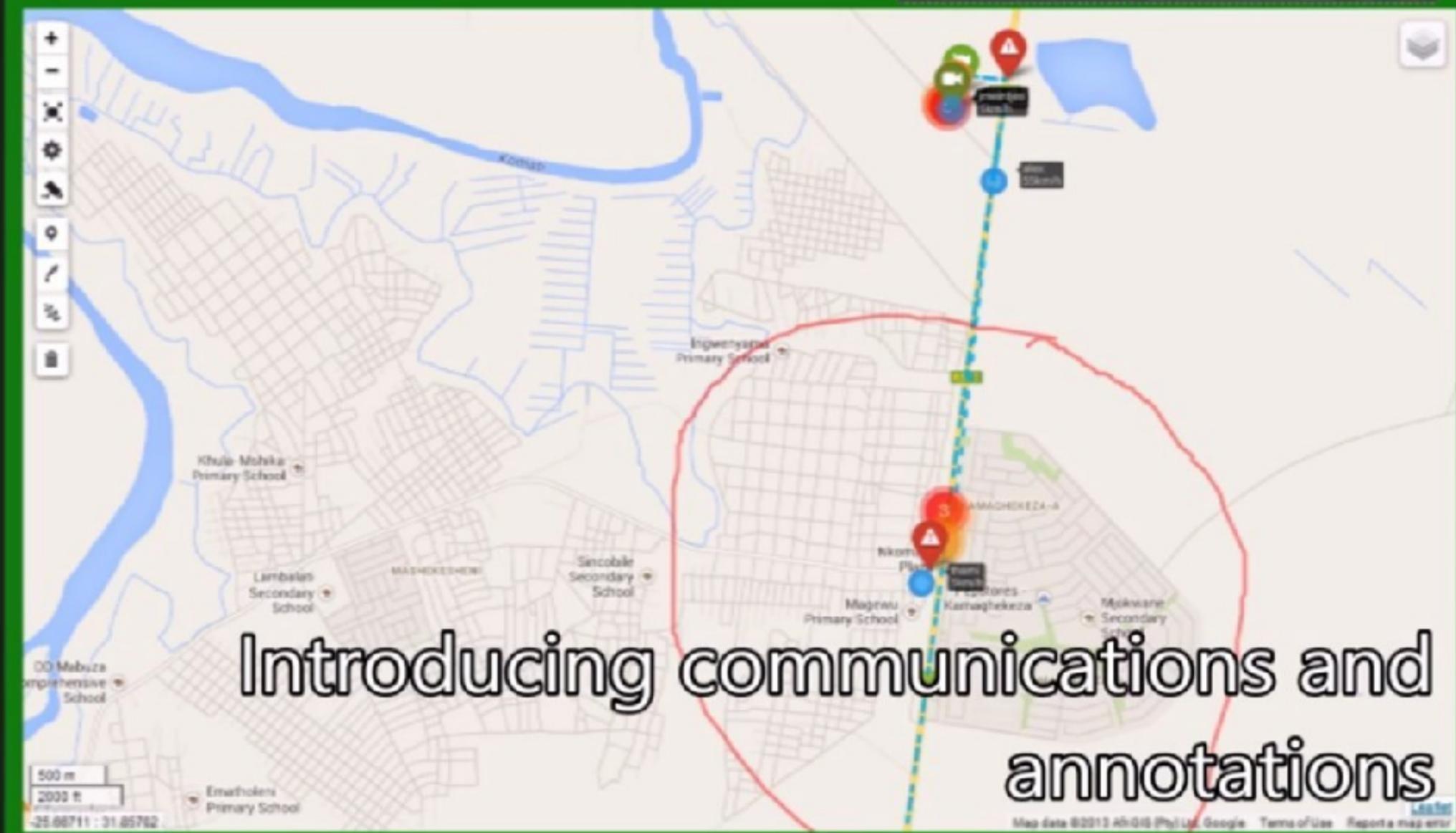
Media



Notifications

- cventer logged in 2 minutes ago
- thami added a new 'Image' 4 minutes ago
- thami added a new 'Image' 3 minutes ago
- brian added a new 'Image' 3 minutes ago
- J.Leuschner logged in 3 minutes ago
- alex logged in 10 minutes ago

Map



Introducing communications and annotations

Comms

- Exercise 1
- please type that 3 minutes ago
 - edec4 1 minute ago: we can hear clearly
 - Hi Thami. We got your stings 4 minutes ago
 - Our response team hasn't left the base yet. 2 minutes ago
 - alex 2 minutes ago: leaving now
 - @Thami. Please keep following the suspect 2 minutes ago
 - edec4 moments ago: alex put normal tracking on
 - edec4 moments ago: not 30 sec
 - Alex please turn on real time tracking, not just every 30s updates moments ago
 - thanks, working now moments ago

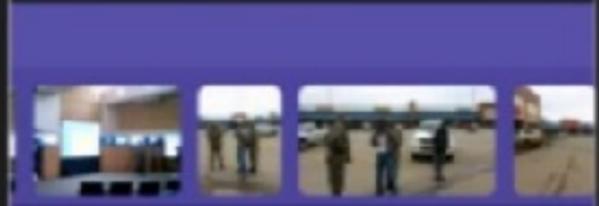
Indiza Video Camera

Use position from gateway own track:

Enable automatic capture:



Capture




alex created Resource - located at

Indiza Video Camera

Add a comment...

Create an incident from Media Comments

Taken @ 12:439

Taken @ 4:48

Taken @ 6:752

Demonstration to Gen Smith

4 hours ago

Demonstration to Gen Smith

4 hours ago

UAV live video streaming and tracking

pieter moments ago

yes

indiza moments ago

Yes, it does... have to restart it... By refreshing the page

indiza moments ago

Should be

Messages

- OSS teams have deployed between substations 3 and 4.**
rjermy 19 hours ago
- OSS Sub 4 Deployment**
rjermy 19 hours ago
- OSS hiding**
pbbotha 19 hours ago
- New incident**
pbbotha 20 hours ago
- Main route**
pbbotha 20 hours ago
- Indiza Video Camera**
alex 20 hours ago
- UAV's Album**
uavcopy 20 hours ago
- Footpath no 2 at 17.6**
pbbotha 20 hours ago
- Footpath**
pbbotha 20 hours ago
- Planning session Deploy Radar**
alex 22 hours ago
- Suspect apprehended**
thami 24 hours ago

Media

Notifications

- robcalitz logged in 18 minutes ago
- pieter logged in 18 minutes ago
- adventhage2 logged in 18 minutes ago
- priash logged in 20 minutes ago
- rjermy commented 'Fire in the sugar cane, seen on gobi 640 GigE. ~20km' 40 minutes ago

Map

Network Coverage Legend:

- no signal
- very poor
- poor
- good
- very good

Map data ©2013 AirGIS (Pty) Ltd, Google, Terms of Use

Comms

OSS

- 2 days ago
- rjermy 2 days ago: There were some defaults in one of the other apps that I hadn't overwritten yet. The processed image is at the correct location
- rjermy 2 days ago: We haven't deployed all of our sensors so we aren't doing the proper line of sight processing, so the defaults that I hadn't changed were being used
- intOne 20 hours ago: TASK OssM and OssM: Please deploy to Sub 4 today
- rjermy 18 hours ago: We have deployed between sub 3 and sub 4, busy setting up our systems. My cellphone is currently tracking
- Please deploy to Sub 7 17 minutes ago
- create incident at site when deployed 17 minutes ago



Concept Demonstration and Experimentation Centre (CDEC)
November 2013

CSIR Safety and Security Flagship

CSIR Flagship
in **SAFETY & SECURITY**
WELCOME!.....



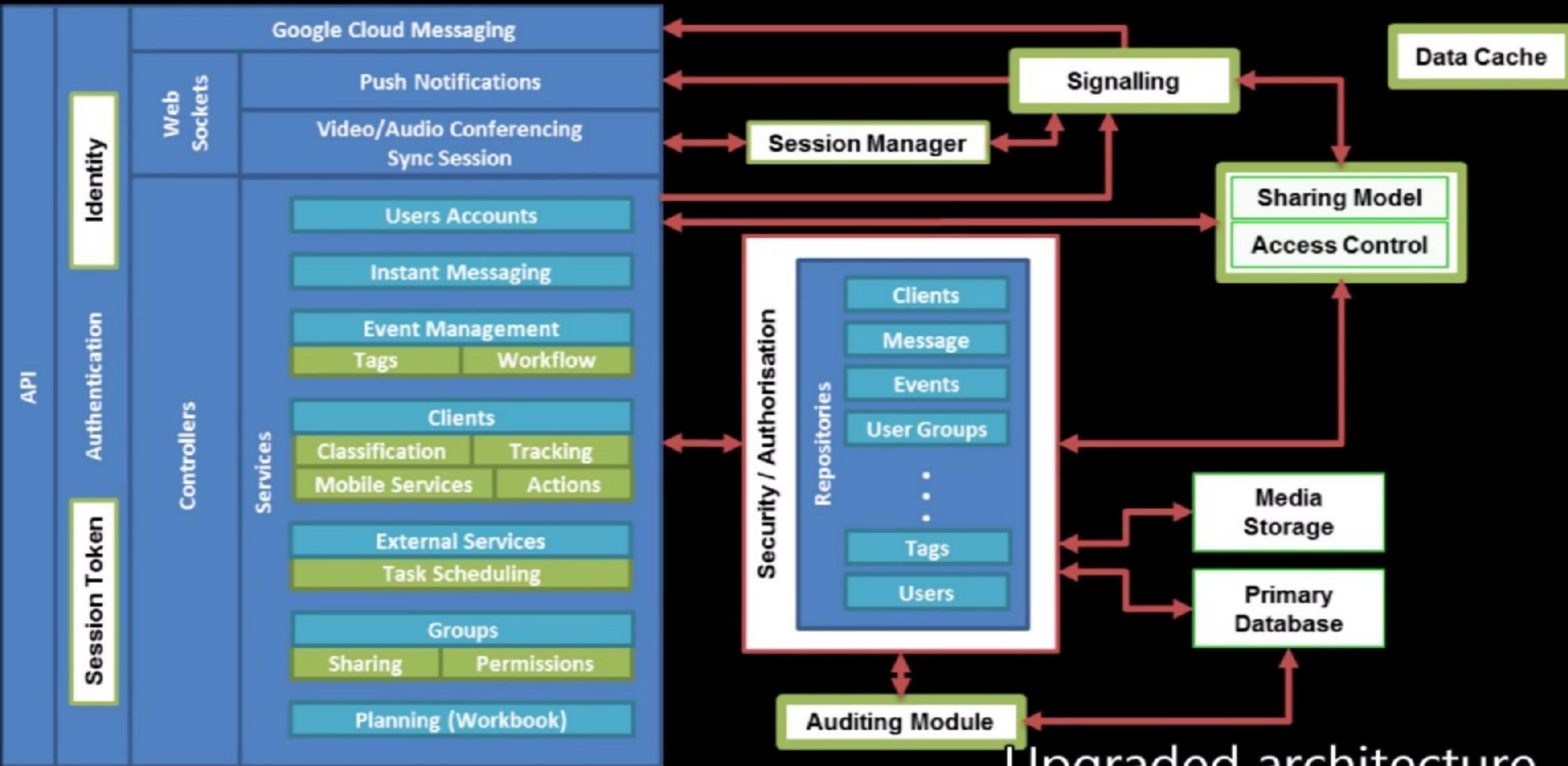
The beginning of flagship - March 2014



Concept Demonstration and Experimentation Centre (CDEC)

June 2014





Upgraded architecture

- Unidentified substance discovered in... @ 15 hours ago
- Minor vehicle accident on the M6 east @ 15 hours ago
- Suspicious vehicle reported at the harbour @ 15 hours ago
- Arrest of cyber crime syndicate suspect @ 15 hours ago
- Illegal substance confiscated during... @ 15 hours ago
- Vandalism reported at the south bridge on... @ 15 hours ago
- Road closures due to cycle race @ 15 hours ago
- Service delivery protest crowd gathering @ 15 hours ago
- Stolen goods recovered @ 15 hours ago
- Strange vessel reported off the south west... @ 15 hours ago
- Arrest of 3 suspected abalone poachers @ 15 hours ago
- Motor vehicle theft @ 15 hours ago
- Traffic accident reported on N1 south at... @ 16 hours ago
- Suspected gang leader detained on charg... @ 16 hours ago
- Request for medic @ 16 hours ago
- Suspicious vehicle @ 16 hours ago
- Test @ 22 hours ago
- Test @ 22 hours ago
- Test @ 22 hours ago



1 : Event Chart

this year

- Project Action: 11
- Vehicle Theft: 4
- Unlawful: 2
- Traffic Accident: 7
- Arrest: 16
- Poacher Sighting: 8

2 : N1 Atherbury

Don't refresh

CCTV for 10/08/2015 15:27:45

10/08/2015 15:27:45

Pieter Botha

Hello Pieter @ 14 hours ago

Hi Shazia @ 14 hours ago

Have you thought about the deployment details for the west of the harbour? @ 14 hours ago

Yes I have, let's start a workbook and video conference now so that we can draw up the planned positions and movements and finalise the details @ 14 hours ago

Great! It will help to sync up our plans as soon as possible @ 14 hours ago

I am joining the workbook now. Thanks Pieter @ 14 hours ago

Hi Shazia, can we have a quick feedback session regarding the Harbour deployment? @ 13 minutes ago

Yes, let's join the workbook from yesterday @ 13 minutes ago

Okay @ 13 minutes ago

Type something...

The new Cmore portal

- Unidentified substance discovered in... @ 15 hours ago
- Minor vehicle accident on the M6 east @ 15 hours ago
- Suspicious vehicle reported at the harbour @ 15 hours ago
- Arrest of cyber crime syndicate suspect @ 15 hours ago
- Illegal substance confiscated during... @ 15 hours ago
- Vandalism reported at the south bridge on... @ 15 hours ago
- Road closures due to cycle race @ 15 hours ago
- Service delivery protest crowd gathering @ 16 hours ago
- Stolen goods recovered @ 16 hours ago
- Strange vessel reported off the south west @ 16 hours ago
- Arrest of 3 suspected abalone poachers @ 16 hours ago
- Motor vehicle theft @ 16 hours ago
- Traffic accident reported on N1 south at... @ 16 hours ago
- Suspected gang leader detained on charge @ 16 hours ago
- Request for medic @ 16 hours ago
- Suspicious vehicle @ 16 hours ago
- Test @ 22 hours ago



Vandalism reported at the south bridge on Main Road

alex created Event in CSIR - source Website located at (-33.96144157562081, 18.438667773807538) ID: 3990 15 hours ago

Vandalism reported at the south bridge on Main Road

Status: Logged

Protest Action

Fire Type: Deliberate Arson
 Burn Block: 45A
 Wind Direction: NorthEast

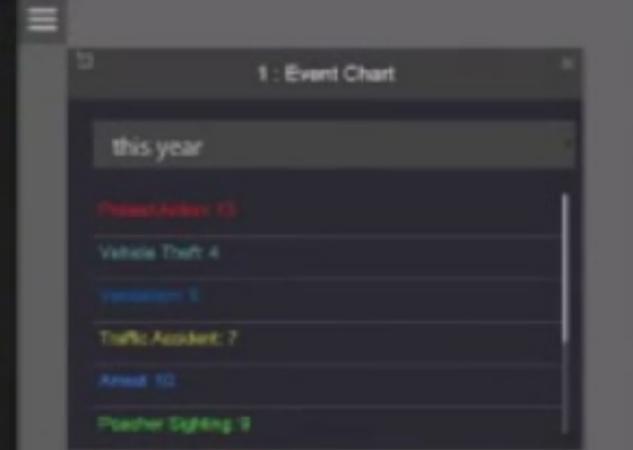
Person

Name: Bob Dylan
 ID/Passport: 12345678910
 Nationality: RSA

Reason for highlight... Highlight

Add a comment... Save

- shazia yes, action needs to be taken 4 minutes ago
- beta This vandalism thing is getting out of hand. 2 hours ago
- shazia fire 2 hours ago



Chat conversation between Pieter Botha and Shazia:

- Shazia: Hello Pieter @ 15 hours ago
- Pieter: Hi Shazia @ 15 hours ago
- Pieter: Have you thought about the deployment details for the west of the harbour? @ 15 hours ago
- Shazia: Yes I have, let's start a workbook and video conference now so that we can draw up the planned positions and movements and finalise the details. @ 15 hours ago
- Pieter: Great! It will help to sync up our plans as soon as possible @ 14 hours ago
- Pieter: I am joining the workbook now. Thanks Pieter @ 14 hours ago
- Shazia: Hi Shazia, can we have a quick feedback session regarding the harbour deployment? @ 28 minutes ago
- Pieter: Yes, let's join the workbook from yesterday @ 28 minutes ago
- Shazia: Okay @ 27 minutes ago

Collaboration on a tagged event with commenting

- Unidentified substance discovered in... 15 hours ago
- Minor vehicle accident on the M6 east 15 hours ago
- Suspicious vehicle reported at the harbour 15 hours ago
- Arrest of cyber crime syndicate suspect 16 hours ago
- Illegal substance confiscated during... 16 hours ago
- Vandalism reported at the south bridge on... 16 hours ago
- Road closures due to cycle race 16 hours ago
- Service delivery protest crowd gathering 16 hours ago
- Stolen goods recovered 16 hours ago
- Strange vessel reported off the south west... 16 hours ago
- Arrest of 3 suspected abalone poachers 16 hours ago
- Motor vehicle theft 16 hours ago
- Traffic accident reported on N1 south at... 16 hours ago
- Suspected gang leader detained on charg... 16 hours ago
- Request for medic 16 hours ago
- Suspicious vehicle 16 hours ago
- Test 23 hours ago
- Test 23 hours ago



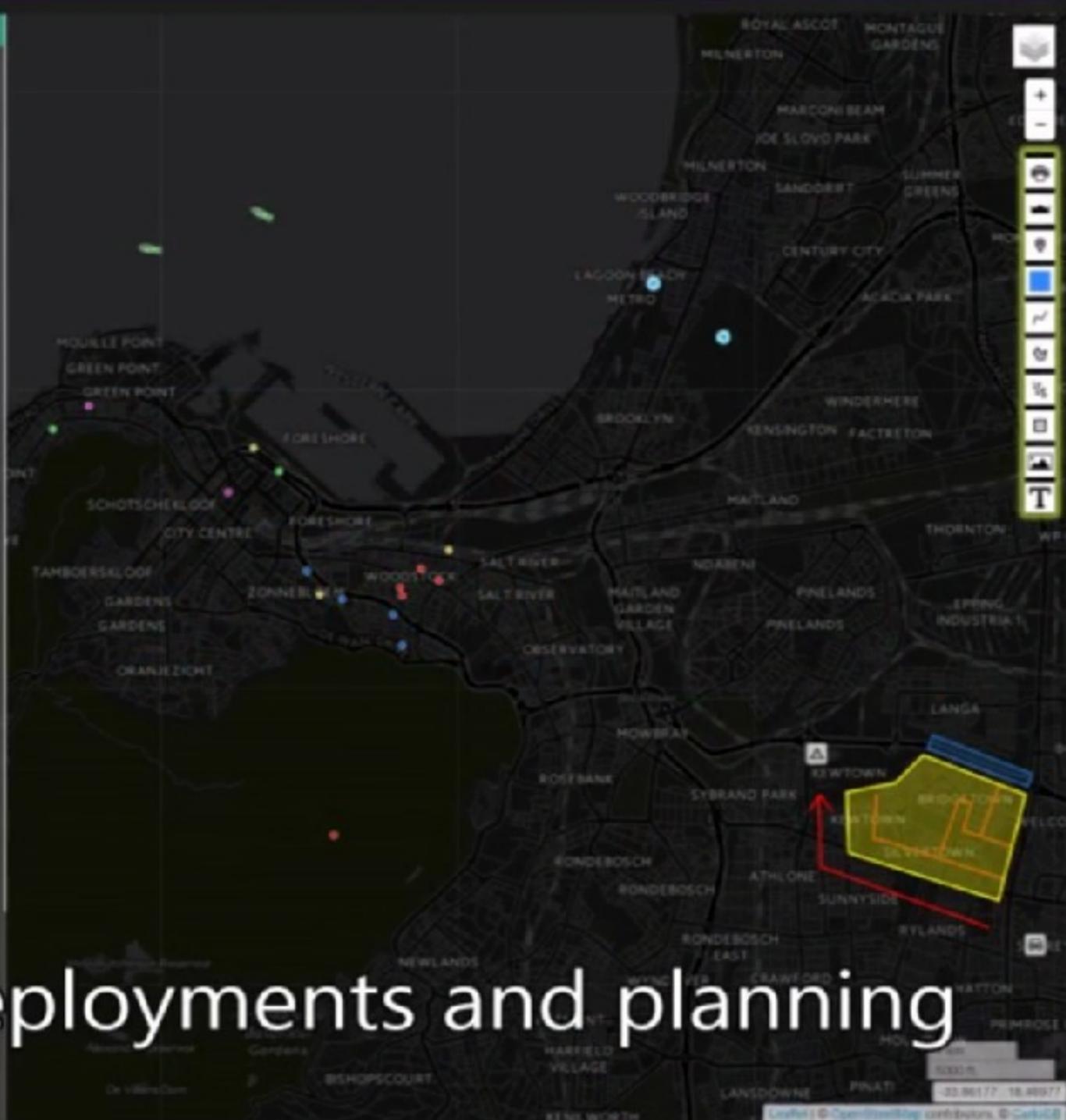
Planning 101

Search pages...

Day 1

Day 2

Whiteboard



1: Event Chart

this year

- Police Station: 11
- Vehicle Theft: 4
- Shoplifting: 7
- Traffic Accident: 7
- Arrest: 10
- Protest/rioting: 9

2: N1 Aberbury

Don't refresh

Chat with Pieter Botha

test 7 months ago

hello 7 months ago

Hello Pieter 15 hours ago

Hi Shazim 15 hours ago

Have you thought about the deployment details for the west of the harbour? 15 hours ago

Yes I have, let's start a workbook and video conference now so that we can draw up the planned positions and movements and finalise the details 15 hours ago

Great! It will help to sync up our plans as soon as possible 15 hours ago

I am joining the workbook now, thanks Pieter 15 hours ago

Hi Shazim, can we have a quick feedback session regarding the harbour deployment? 15 hours ago

Yes, let's join the workbook from yesterday 15 hours ago

Okay 15 hours ago

Type something...

Deployments and planning

- 1 Unidentified substance discovered in...
2 mins ago 10:24 hours ago
- 2 Minor vehicle accident on the M6 east
2 mins ago 10:23 hours ago
- 3 Suspicious vehicle reported at the harbour
2 mins ago 10:23 hours ago
- 4 Arrest of cyber crime syndicate suspect
2 mins ago 10:23 hours ago
- 5 Illegal substance confiscated during...
2 mins ago 10:23 hours ago
- 6 Vandalism reported at the south bridge on...
2 mins ago 10:23 hours ago
- 7 Road closures due to cycle race
2 mins ago 10:23 hours ago
- 8 Service delivery protest crowd gathering
2 mins ago 10:23 hours ago
- 9 Stolen goods recovered
2 mins ago 10:23 hours ago
- 10 Strange vessel reported off the south west...
2 mins ago 10:23 hours ago
- 11 Arrest of 3 suspected abalone poachers
2 mins ago 10:23 hours ago
- 12 Motor vehicle theft
2 mins ago 10:23 hours ago
- 13 Traffic accident reported on N1 south at...
2 mins ago 10:23 hours ago
- 14 Suspected gang leader detained on charg...
2 mins ago 10:23 hours ago
- 15 Request for medic
2 mins ago 10:23 hours ago
- 16 Suspicious vehicle
2 mins ago 10:23 hours ago
- 17 Test
2 mins ago 10:23 hours ago



vessel (Event)

6/10/2015, 1:04:41 PM

CLOSE X

1. Event Overview

This year

View this year

View history

View

View history

2. All Alerts

10/06/2015 15:27:45

3. Peter Doherty

Hi there

Hi there

Have you thought about the equipment needs for the rest of the festival?

Yes I have, let's start a workshop and video conference now so that we can draw up the planned positions and movements and know the details

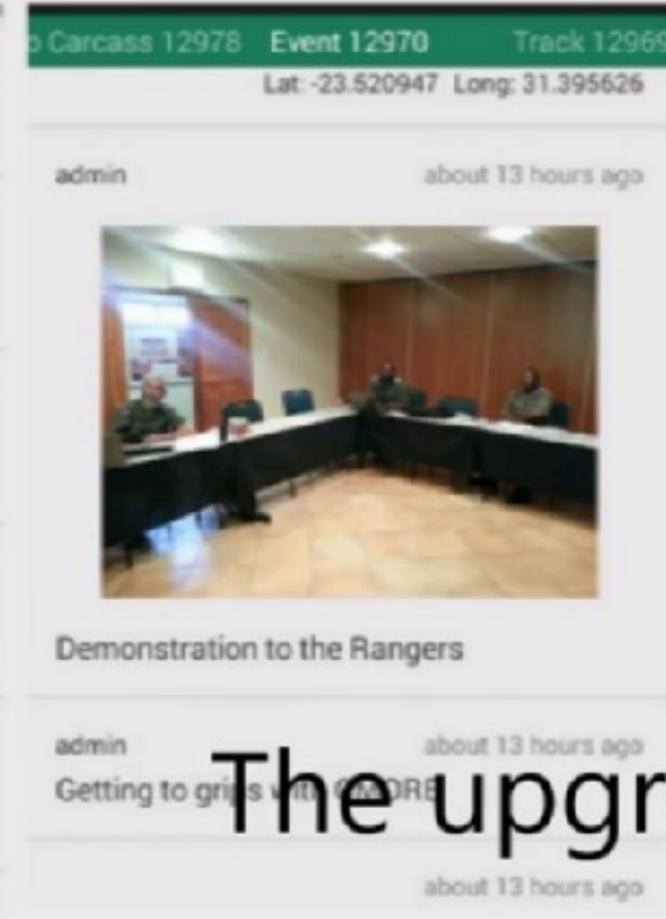
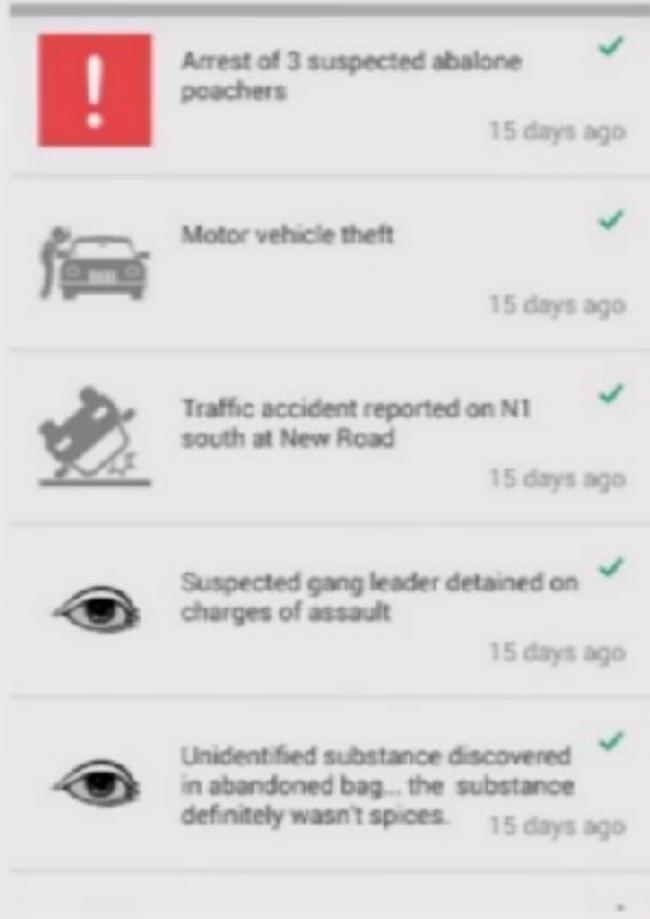
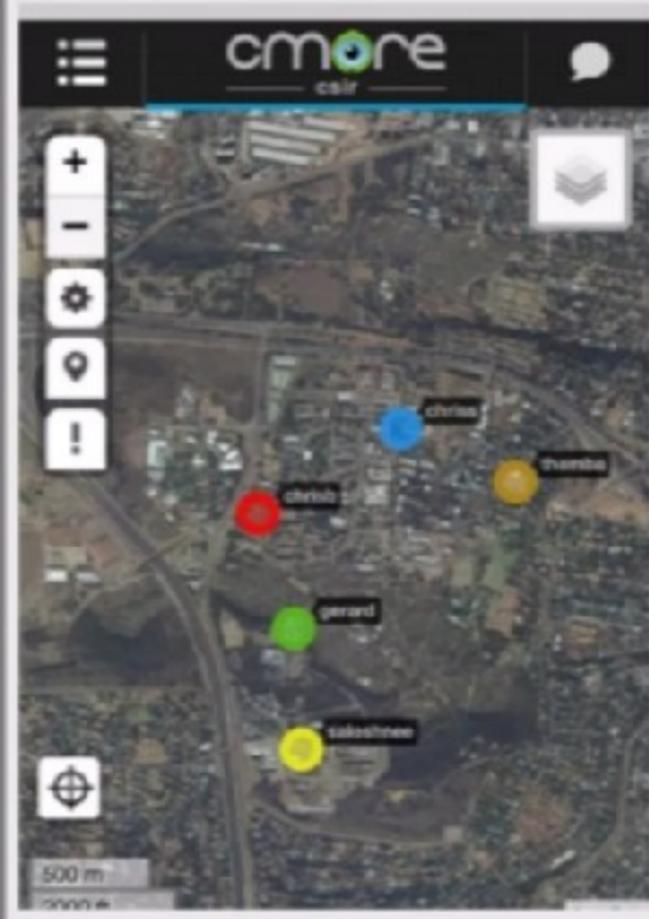
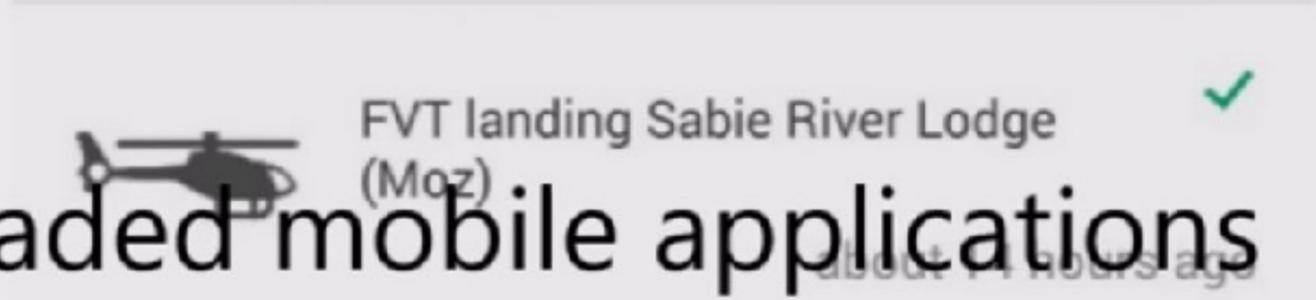
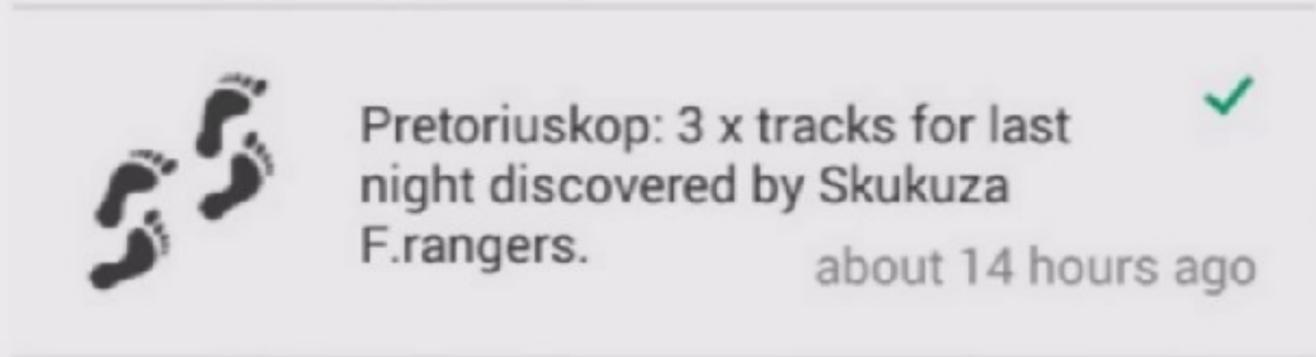
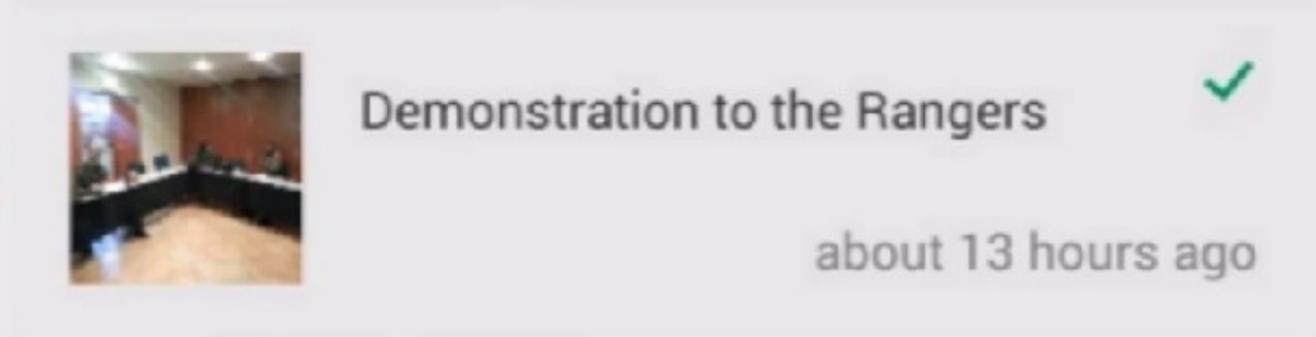
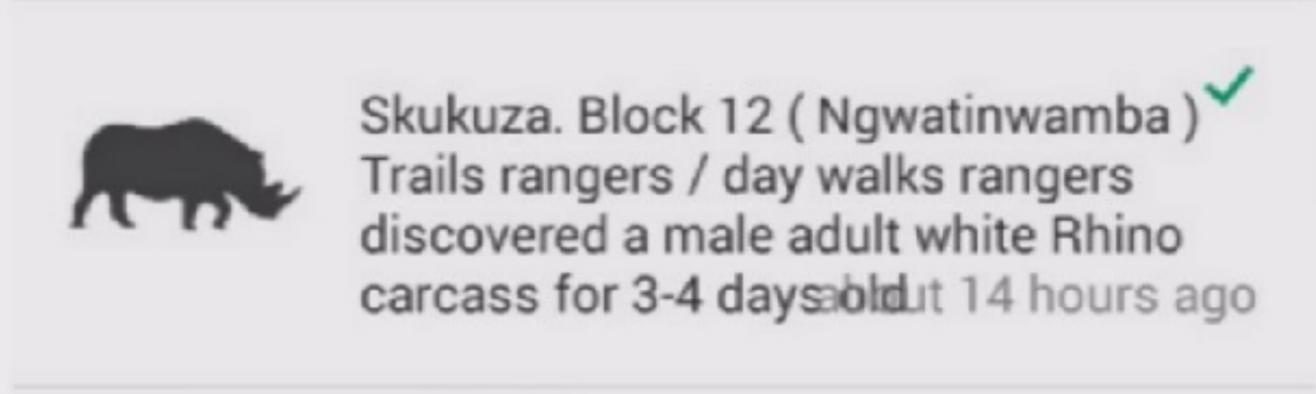
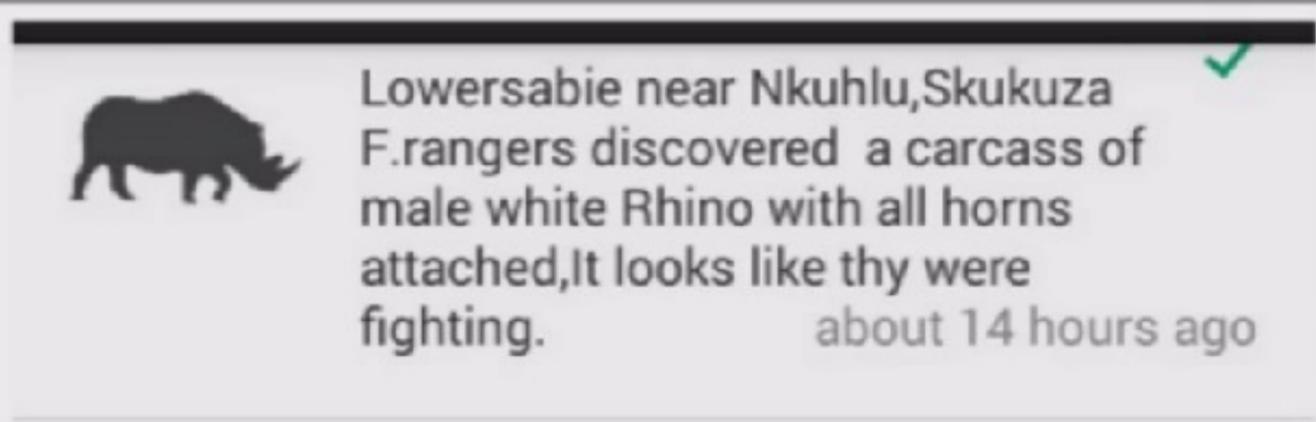
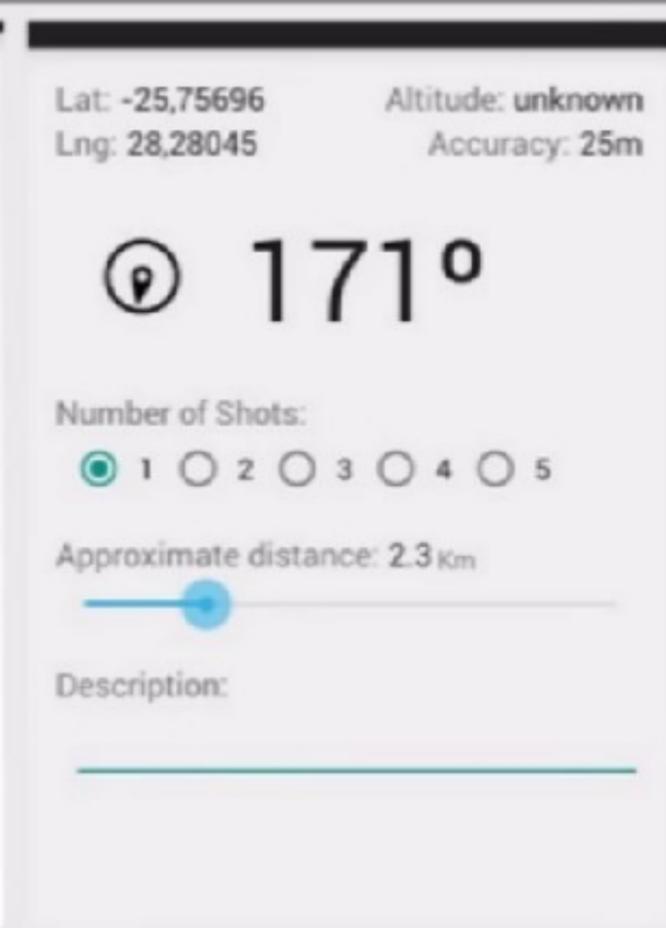
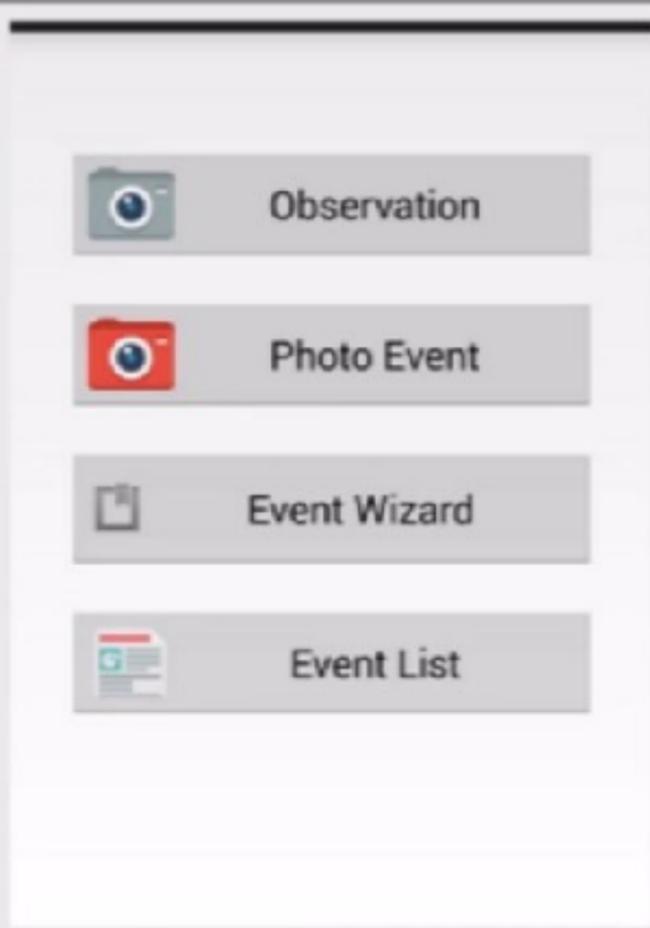
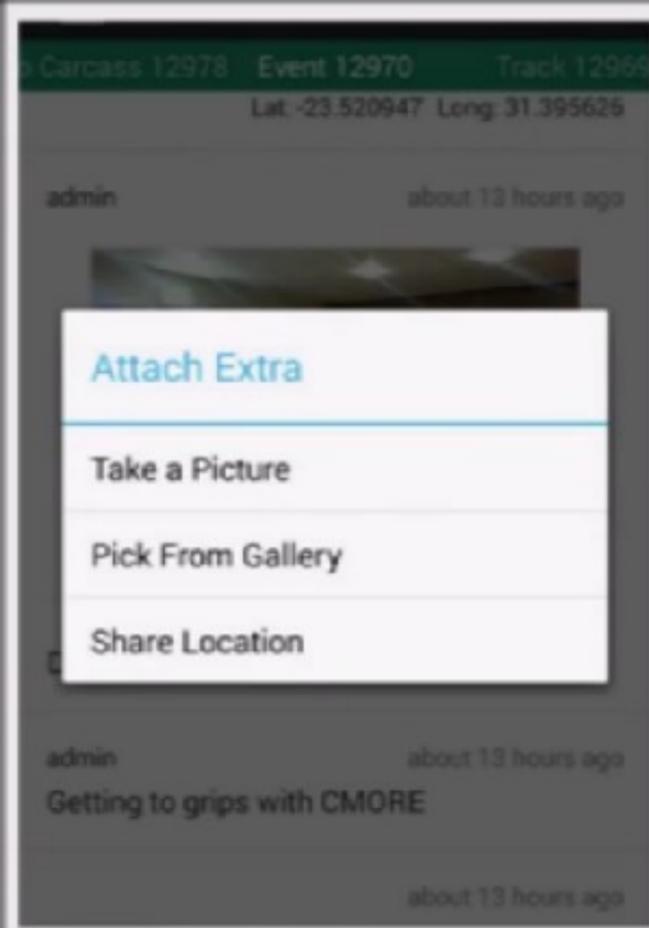
Great it will help to work up our plans as soon as possible

I am doing the workshop now, thanks Peter

Hi there, now we have a quick feedback session regarding the festival equipment

Yes, let's get the workshop from yesterday

Okay



The upgraded mobile applications

Experiment Saldhana

CSIR



SAAB

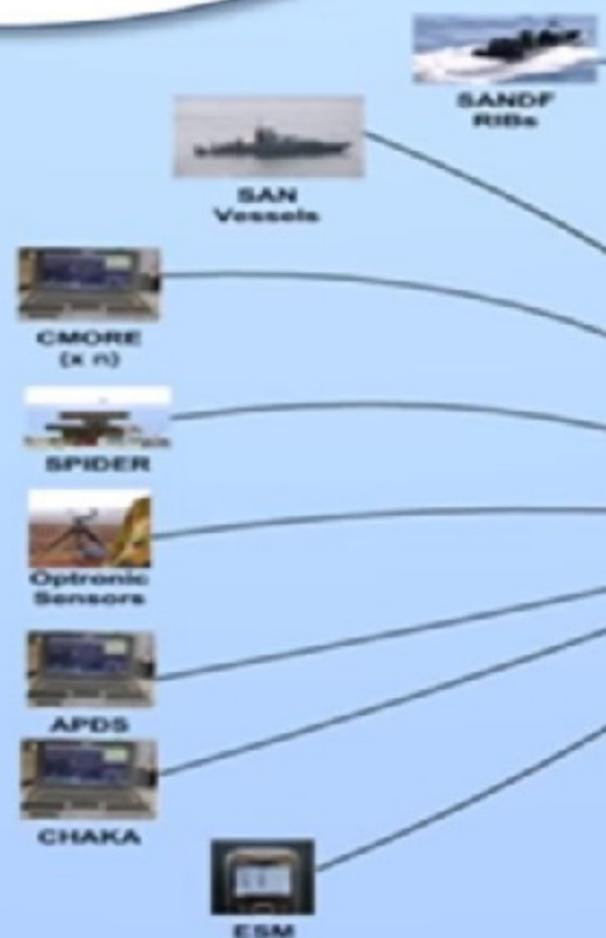


ARMSCOR

IMT

gew technologies

peralex



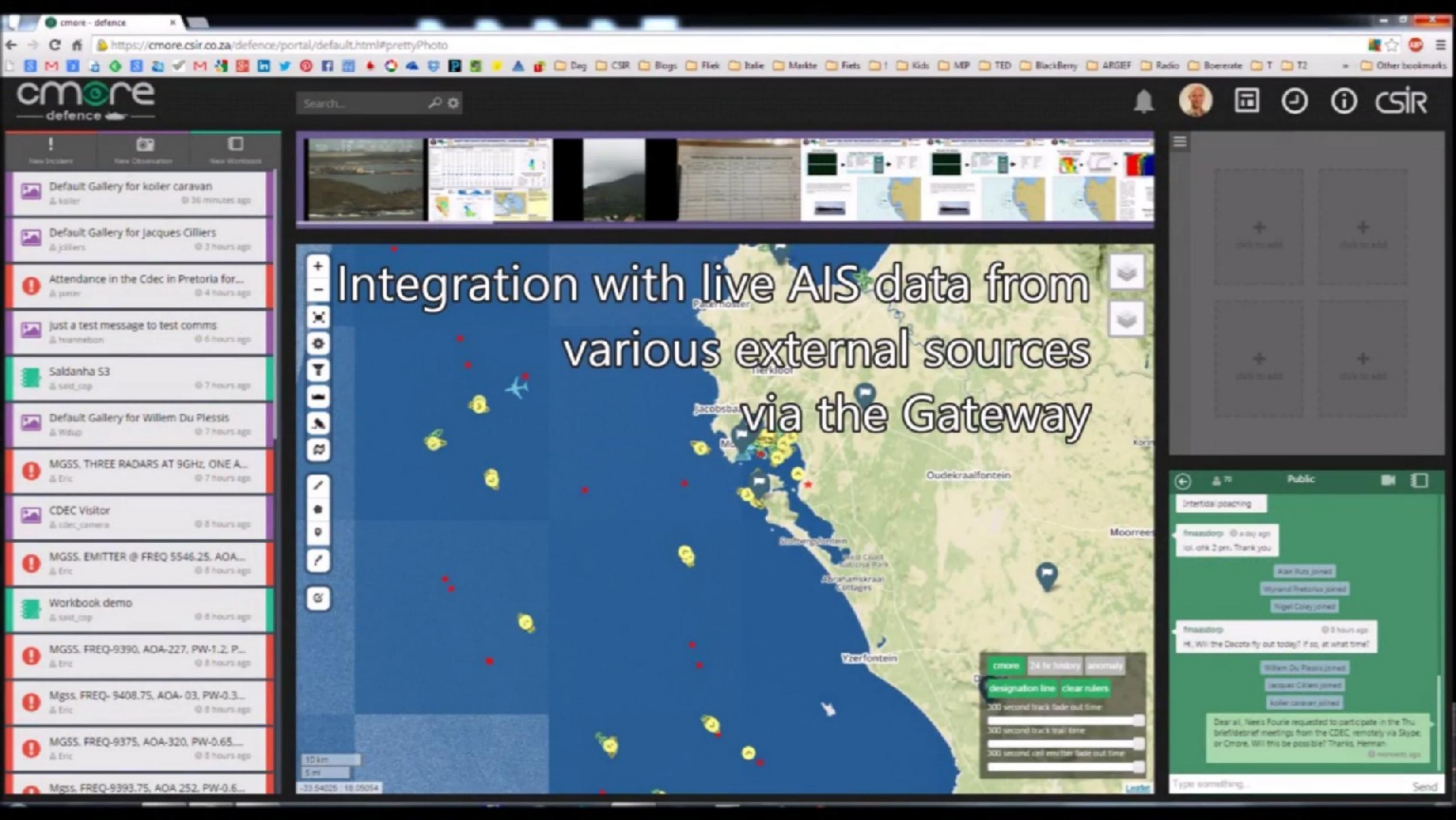
October 2014



Setup of a virtual operations centre



Link with the CSIR CDEC



Integration with live AIS data from various external sources via the Gateway

- Default Gallery for koiler caravan @ 36 minutes ago
- Default Gallery for Jacques Cilliers @ 3 hours ago
- Attendance in the Cdec in Pretoria for... @ 4 hours ago
- Just a test message to test comms @ 6 hours ago
- Saldanha S3 @ 7 hours ago
- Default Gallery for Willem Du Plessis @ 7 hours ago
- MGSS, THREE RADARS AT 9GHz, ONE A... @ 7 hours ago
- CDEC Visitor @ 8 hours ago
- MGSS, EMITTER @ FREQ 5546.25, AOA... @ 8 hours ago
- Workbook demo @ 8 hours ago
- MGSS, FREQ-9390, AOA-227, PW-1.2, P... @ 8 hours ago
- Mgss, FREQ- 9408.75, AOA- 03, PW-0.3... @ 8 hours ago
- MGSS, FREQ-9375, AOA-320, PW-0.65... @ 8 hours ago
- Mgss, FREQ-9393.75, AOA 252, PW-0.6... @ 8 hours ago

Public

Intertidal poaching

fransdorp @ 1 day ago
lol. ohk 2 pm. Thank you

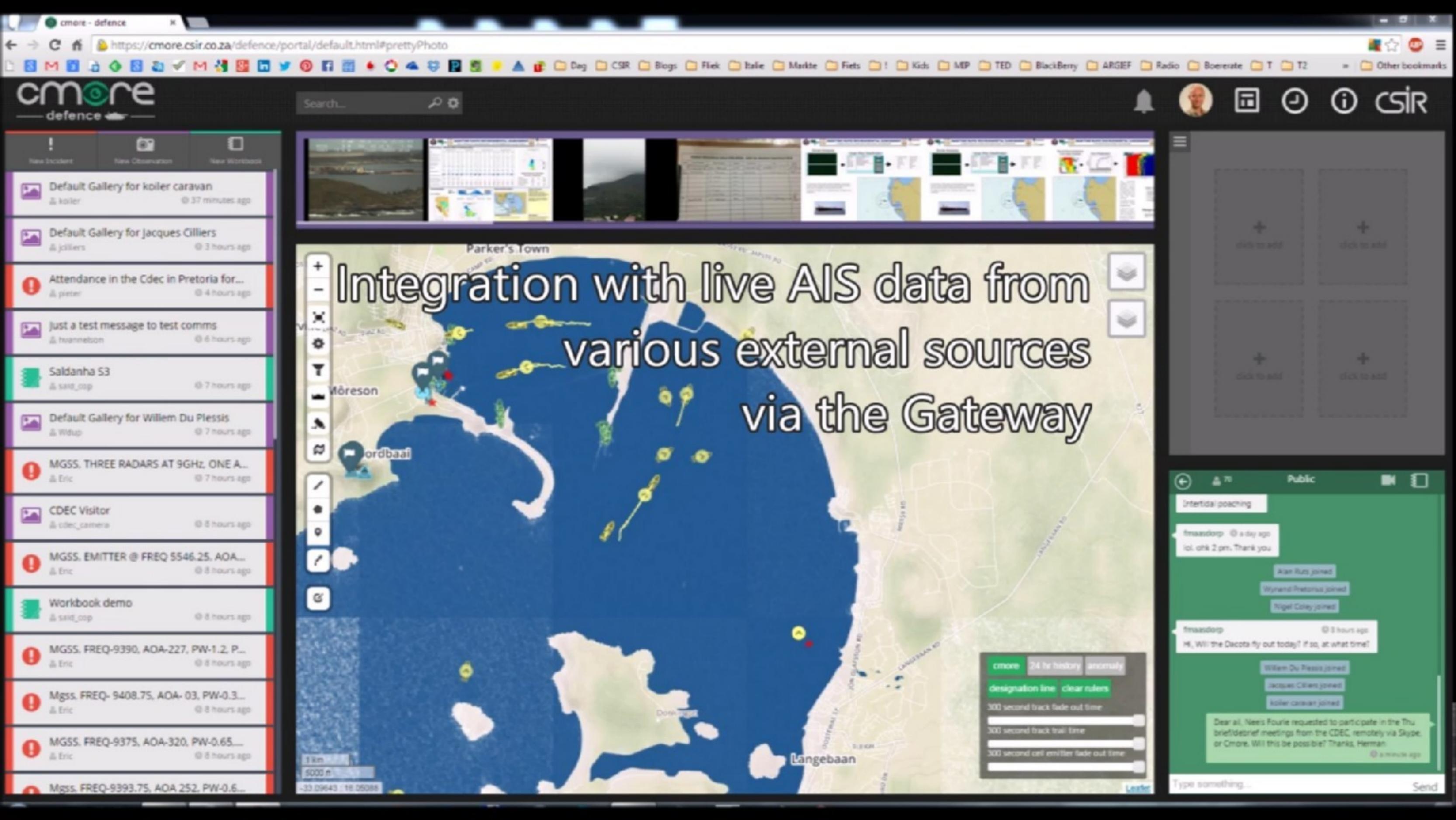
Alan Ruz joined
Wynand Pretorius joined
Nigel Coley joined

fransdorp @ 8 hours ago
Hi, Will the Decota fly out today? If so, at what time?

Willem Du Plessis joined
Jacques Cilliers joined
koiler caravan joined

Dear all, Neels Fourie requested to participate in the Thu brief/debrief meetings from the CDEC remotely via Skype or Cmore. Will this be possible? Thanks, Herman

Type something... Send



Integration with live AIS data from various external sources via the Gateway

- New Incident
- New Observation
- New Workbook
- Default Gallery for koiler caravan @ 37 minutes ago
- Default Gallery for Jacques Cilliers @ 3 hours ago
- Attendance in the Cdec in Pretoria for... @ 4 hours ago
- Just a test message to test comms @ 6 hours ago
- Saldanha S3 @ 7 hours ago
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lol. ohh 2 pm. Thank you

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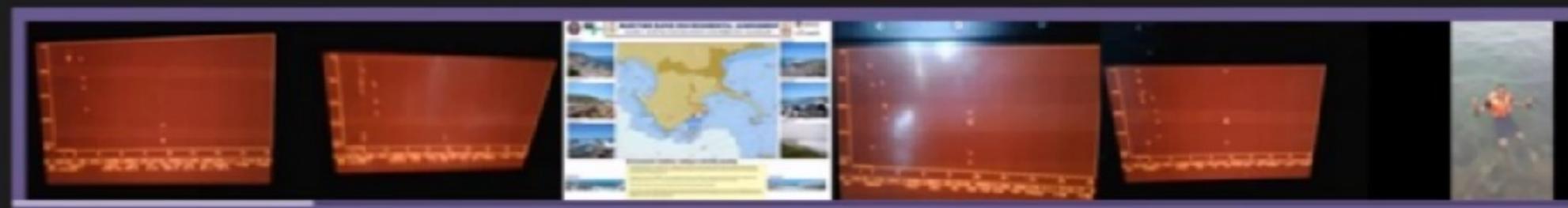
Jacques Cilliers joined

koiler caravan joined

Dear all, Nees Fourie requested to participate in the Thu brief/debrief meetings from the CDEC remotely via Skype or Cmore. Will this be possible? Thanks, Herman @ 1 minute ago

Type something... Send

- New Incident
- New Observation
- New Workbook
- Mgss @ 43 minutes ago
- MgssMgss @ an hour ago
- Default Gallery for shanta hoepfner @ 2 hours ago
- Default Gallery for Petro Snyders @ 2 hours ago
- Default Gallery for Rhyno Rhyno @ 2 hours ago
- Man overboard @ 2 hours ago
- Two namacuras. @ 2 hours ago
- Ship with equipment for wind turbines @ 2 hours ago
- Pair of namacuras. @ 2 hours ago
- Pair of namacuras. @ 2 hours ago
- Pair of namacuras. @ 2 hours ago
- Escort @ 2 hours ago
- Boarding @ 3 hours ago
- Namacura interception @ 3 hours ago
- Intercept 'blue' boat approach we red. @ 3 hours ago
- Malgas from sea



Integration with optronic sensors, real time designation and tracking

1 : Incident Monitor

- shazia-Worker
- Man overboard @ 2 hours ago
- Ship with equipment for wind turbines @ 2 hours ago
- Escort @ 2 hours ago

2 : Gallery Viewer

petro-Cmore technical architect

CSIR

alex @ 2 hours ago
best get off to it then

alex @ 40 minutes ago
someone tell eric to add descriptions to what he sends

alex @ 40 minutes ago
so can make sense of it

alex @ 12 minutes ago
how many poachers are floating about?

alex @ 12 minutes ago
do they have any equipment such as vessels or vehicles

alex @ 2 minutes ago
are they armed? where about are they?

alex @ 2 minutes ago
> pre warn immigration of possible illegals

Type something... Send

New Incident New Observation New Workbook

- Saving the day @ moments ago
- My heroes @ 2 minutes ago
- Help has arrived @ 3 minutes ago
- Ship wrecked people, waiting for a bells @ 4 minutes ago
- Chrome memory usage @ 4 minutes ago
- RHIB support @ 8 minutes ago
- Mine sweeper, Sealab, Namakura, Spes Ri... @ 14 minutes ago
- Mine sweeper, Sealab, Namakura, Spes Ri... @ 17 minutes ago
- Tracking the UAV using the PCL AoA @ 18 minutes ago
- Mine sweeper, Sealab, Namakura, Spes Ri... @ 19 minutes ago
- Small boats @ 22 minutes ago
- SOS @ 23 minutes ago
- Frigate @ 24 minutes ago
- Help @ 24 minutes ago
- Chopper 2 @ 26 minutes ago
- Chopper



Obzerv ARGC



cmore design 30 sec

Capture Record

Position from gateway: None

Automatic capture: [checkbox]

Access to live video streams

- New Incident
- New Observation
- New Workbook
- lbsamar positions @ 1 minute ago
- Incident 3 @ 2 minutes ago
- Incident 3 @ 2 minutes ago
- Submarine @ 2 minutes ago
- Koiler from SAT
- Namakur from SAT
- Umhloti from SAT
- Vessel ID @ 2 hours ago
- Umhloti from SAT
- Umhloti from SAT
- Umhloti from SAT
- Umhloti from SAT
- Meeting @ 2 hours ago
- Suspected @ 2 hours ago
- Umhloti leaving harbour @ 2 hours ago
- Umhloti from SAT @ 2 hours ago
- Umhloti from SAT @ 2 hours ago



Koiler WebRTC video



Capture Record

Position from gateway: None

Automatic capture: Disabled

Real time integration with operational optical surveillance system



CSIR (moments ago)

Public (17 hours ago)

SANDF (20 days ago)

SAAB (20 days ago)

REUTECH (20 days ago)

Paramount (20 days ago)

IHT (20 days ago)

Denel (20 days ago)

Armcor (20 days ago)

cmore 24 hr history anomaly

designation line clear rulers

300 second track fade out time

34 second track trail time

300 second cell emitter fade out time

1 km
5000 ft
-33.05883 : 17.81298

- New Incident
- New Observation
- New Workbook
- Coming home @ 42 minutes ago
- Bird watching @ an hour ago
- Search and rescue incident (image... @ 2 hours ago
- Going home safely. At last @ 2 hours ago
- Retrieving life raft @ 2 hours ago
- More action @ 2 hours ago
- Saving the day @ 2 hours ago
- My heros @ 2 hours ago
- Help has arrived @ 2 hours ago
- Ship wrecked people, waiting for a bells @ 2 hours ago
- Chrome memory usage @ 2 hours ago
- RHIB support @ 2 hours ago
- Mine sweeper, Sealab, Namakura, Spes Ri... @ 2 hours ago
- Mine sweeper, Sealab, Namakura, Spes Ri... @ 2 hours ago
- Tracking the UAV using the PCL AoA @ 2 hours ago
- Mine sweeper, Sealab, Namakura, Spes Ri... @ 2 hours ago



Tracking an entity using radar, AIS and mobile device

Grid of four placeholder boxes, each containing a plus sign and the text 'click to add'.

Grid of nine organization logos with their names and last update times:

- CSIR (34 minutes ago)
- Public (2 days ago)
- SANDF (21 days ago)
- SAAB (21 days ago)
- REUTECH (21 days ago)
- Paramount (21 days ago)
- IMT (21 days ago)
- Denel (21 days ago)
- Armscor (21 days ago)

To the park

The 5th CSIR
CONFERENCE
IDEAS THAT WORK
8-9 October 2015 | CSIR ICC



To the park



Kruger National Park

A photograph of a meeting room. In the foreground, a wooden desk is partially visible with a laptop and a keyboard. A whiteboard on a stand is positioned against the wall, displaying some handwritten notes. To the left, a large computer monitor shows a software interface. On the right, a poster titled "SMART SYSTEMS FOR COMMAND & CONTROL" with the "csir" logo is displayed. The room has a carpeted floor and a window with blinds in the background. A wooden railing is visible in the lower part of the frame.

First meet with Chief Ranger for Special Operations,
Major General (retired) Johan Jooste
January 2014



First engagement with KNP protection personnel
June 2014



The mobile event application



Import of historical data



First experiment Skukuza Kruger National Park
July 2014



First experiment Skukuza Kruger National Park
July 2014

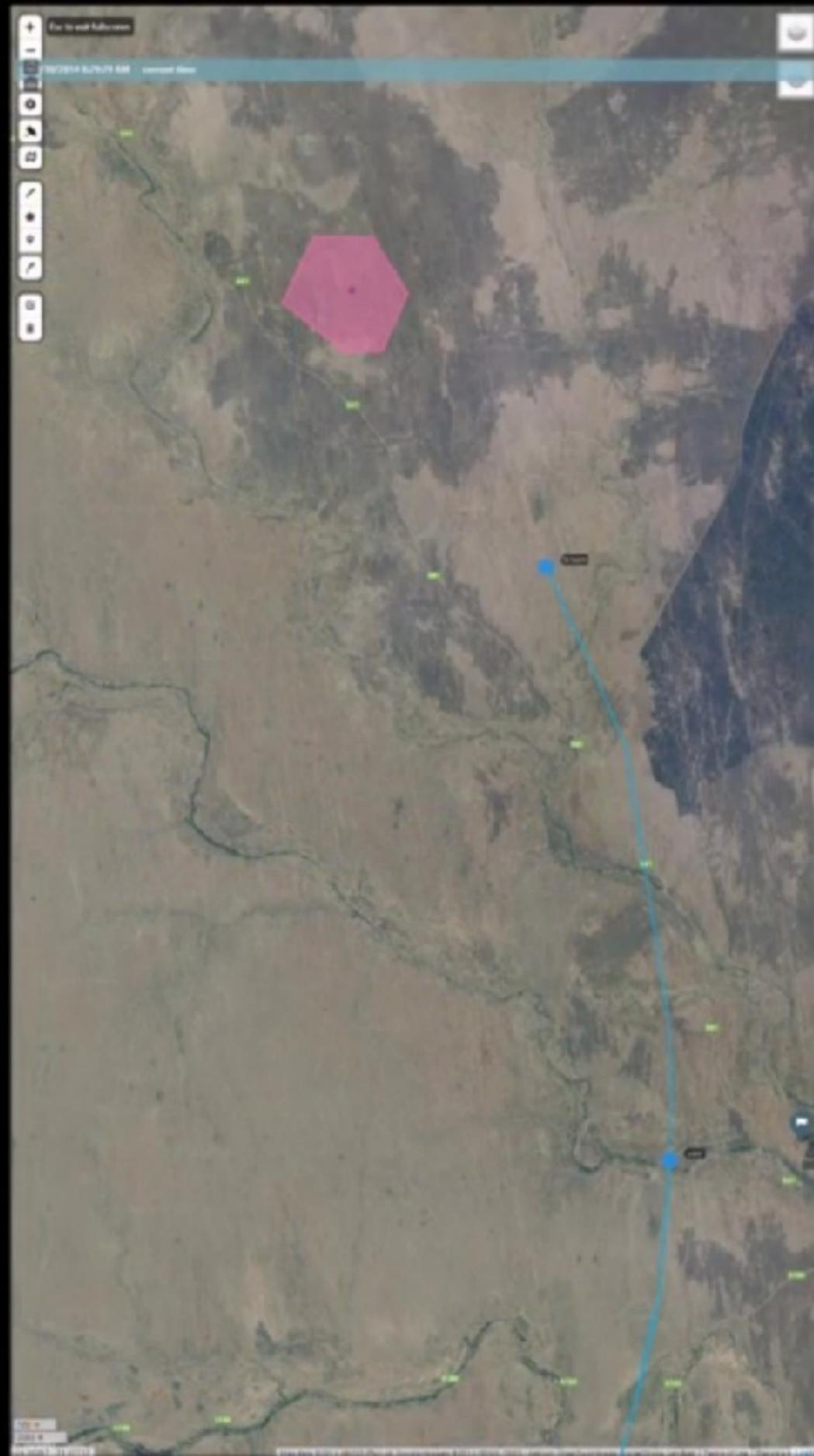


Virtual operations centre



Virtual operations centre





Live experimentation



Tracking of an air asset with a mobile device

- 

Lowersabie near Nkuhlu,Skukuza
F.rangers discovered a carcass of male white Rhino with all horns attached,It looks like thy were fighting. about 14 hours ago
- 

Skukuza. Block 12 (Ngwatinwamba)
Trails rangers / day walks rangers discovered a male adult white Rhino carcass for 3-4 days old about 14 hours ago
- 

Demonstration to the Rangers about 13 hours ago
- 

Pretoriuskop: 3 x tracks for last night discovered by Skukuza F.rangers. about 14 hours ago
- 

FVT landing Sabie River Lodge (Moz) about 14 hours ago
- 

HYI safe Skukuza

Environmental Protection

 Vehicle	 Detection	 Rhino Carcass	 Elephant Carcass
 Shot	 Poacher Sighting	 Contact	 Arrest
 Track	 Border Crossing	 Perimeter Damage	 Tourist Report
 Camp	 Helicopter Air Movement	 Fixed Wing Air Movement	 Firearm

Environmental Protection

- Camp
- Border Crossing
- Shot
- Tourist Report

Conservation

- Animal Lighting
- Dead Animal
- Subjured Animal
- Water

Incident List

- Lowersabie near Nkuhlu,Skukuza F.rangers discovered a carcass of male white Rhino with all horns attached,It looks like thy were fighting about 14 hours ago
- Skukuza Block 12 (Ngwatinwamba) Trails rangers / day walks rangers discovered a male adult white Rhino carcass for 3-4 days old 14 hours ago
- Demonstration to the Rangers about 13 hours ago
- Pretoriuskop: 3 x tracks for last night discovered by Skukuza F.rangers. about 14 hours ago
- FVT landing Sabie River Lodge (Moz) about 14 hours ago
- HYI safe Skukuza

Classification of events

 **Priaash Ramadeen** ID. 1172
CSIR

priaash's SAMSUNG GT-I9500 Sync4.0 
SAMSUNG GT-I9500 Sync4.0  63%

Last Activity: 2 months ago  within 20 m

Affiliation: Friendly 

Classification: LAND, UNKNOWN, UNKNOWN, UNKNOWN

Points Heatmap

Density Network Speed Altitude

History from 2014-01-01 11:22 to 2014-09-19 11:23 [Get](#)

Smooth history line

Reason for highlight... [★ Highlight](#)

[📍 Designate](#)

[Link to Message](#)

 Tracking

 FrontPhoto

 RearPhoto



First pilot deployment and basic training
September 2014



CSIR executive visit to the operations centre
November 2014



Strategic
decision
level

Time =hours, days

Decisions & Actions

Kruger
National Park
Operational
level

Time =minutes

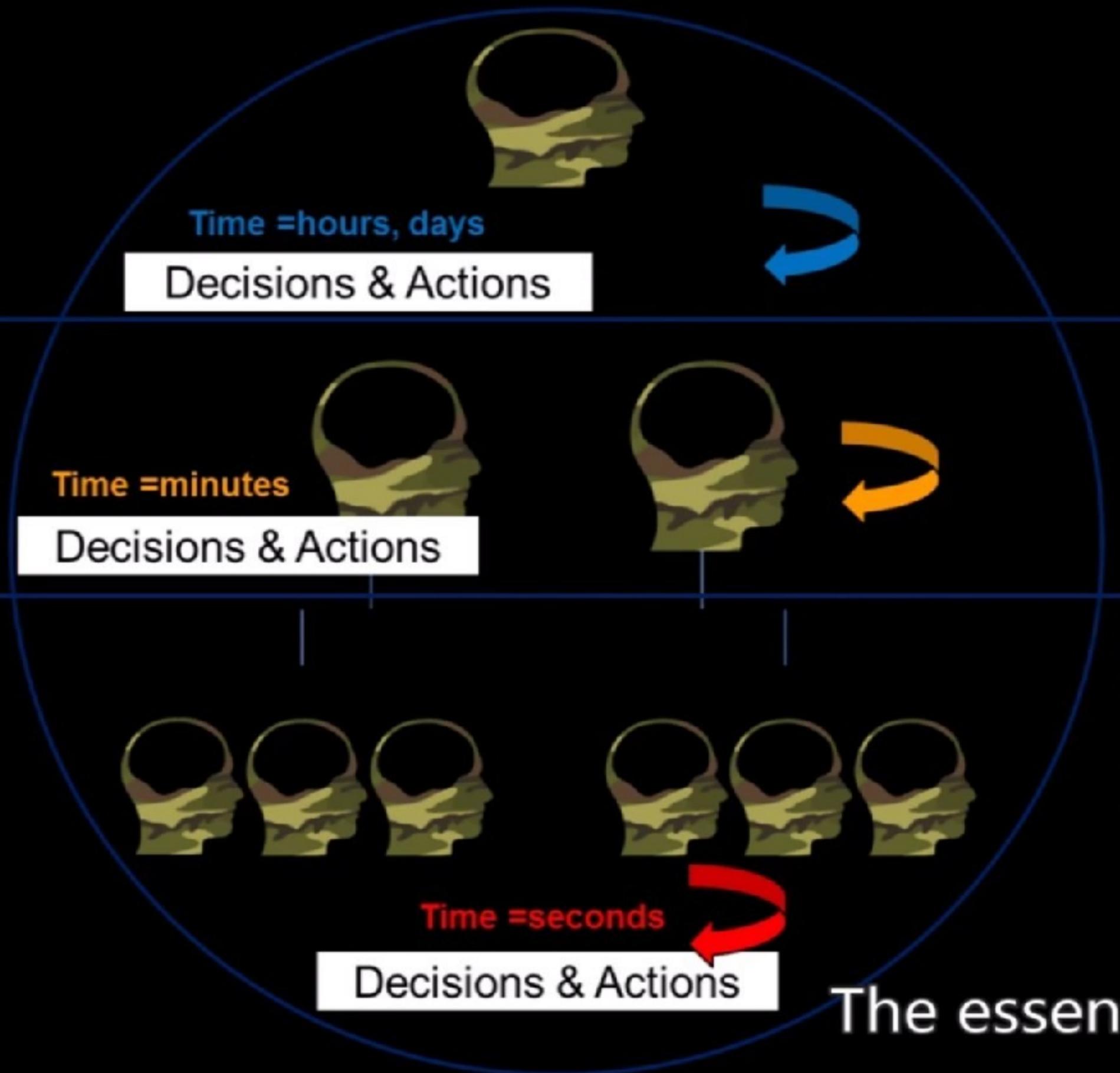
Decisions & Actions

KNP
Deployed
rangers

Time =seconds

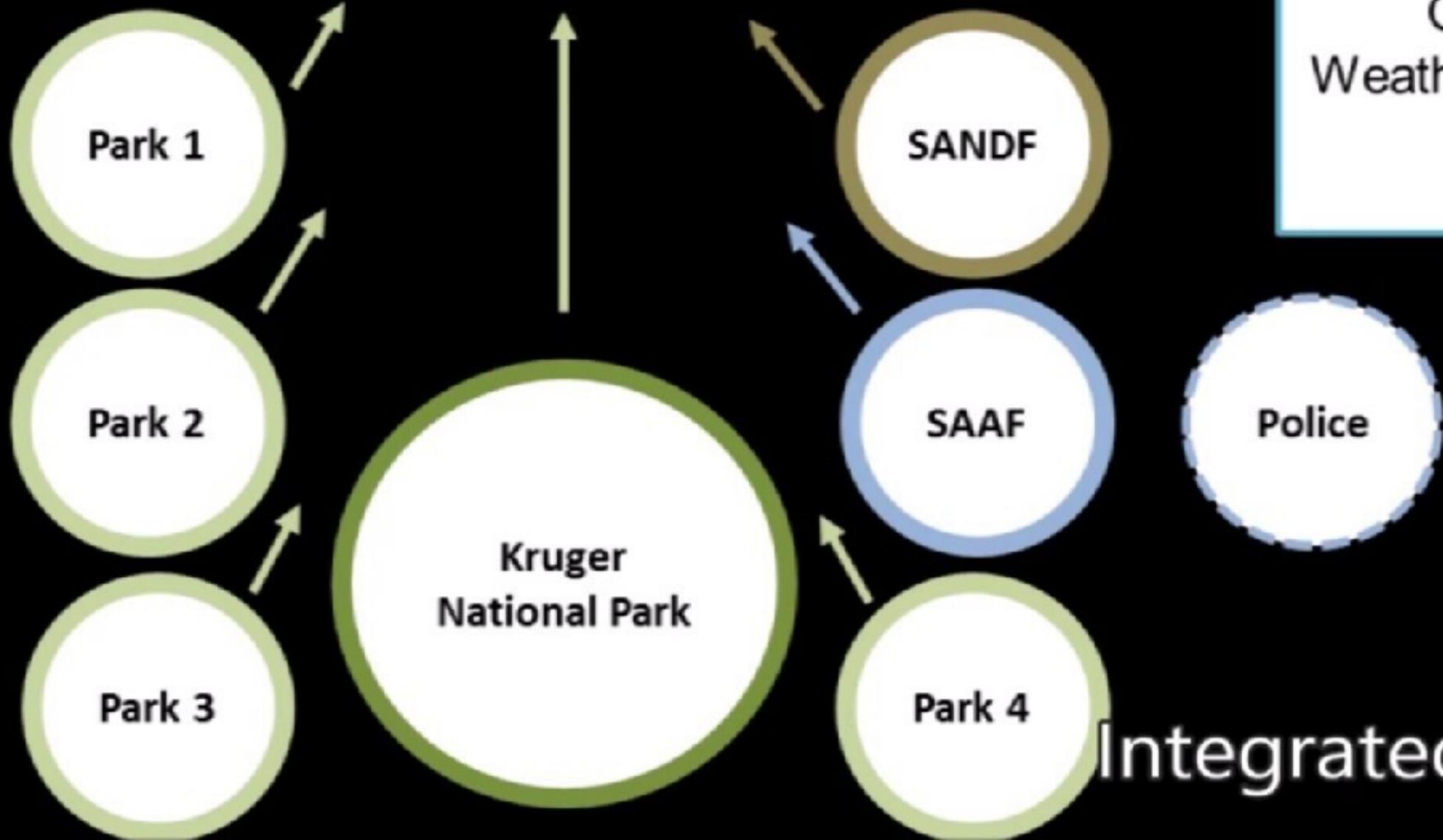
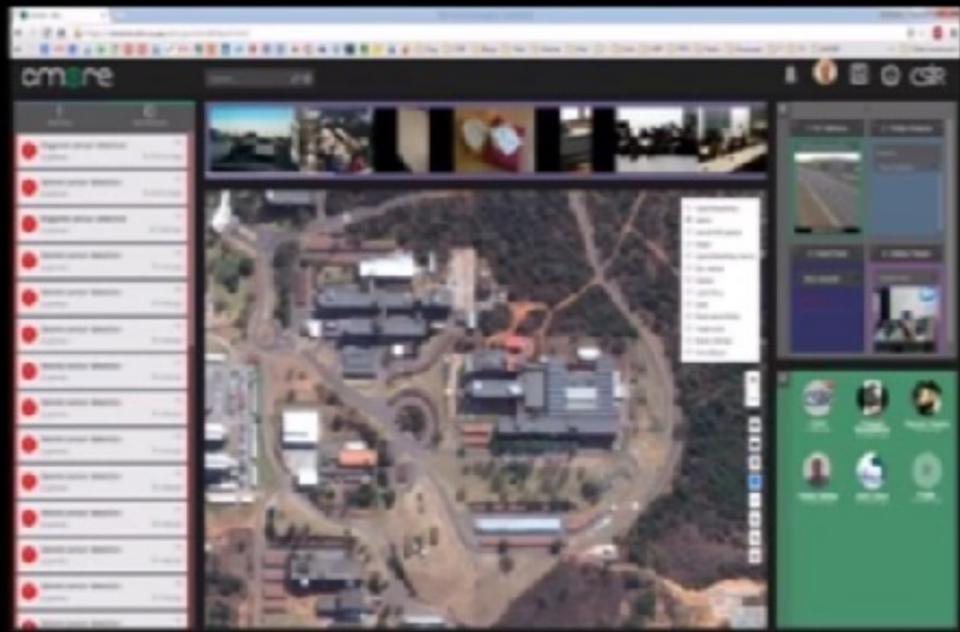
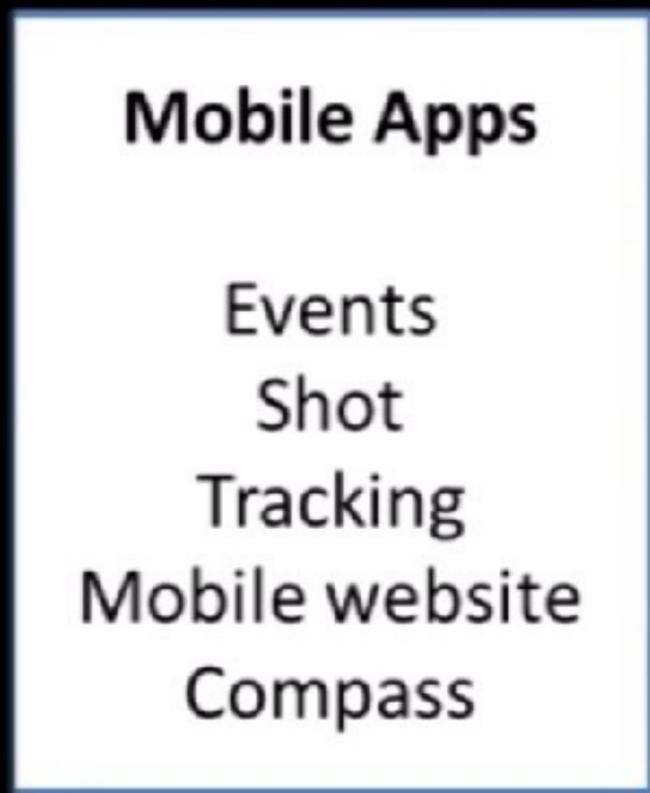
Decisions & Actions

The essential objective





Cmore is being used operationally in the Kruger National Park
since May 2015



Integrated System

Manage the Information

Event data & Classification

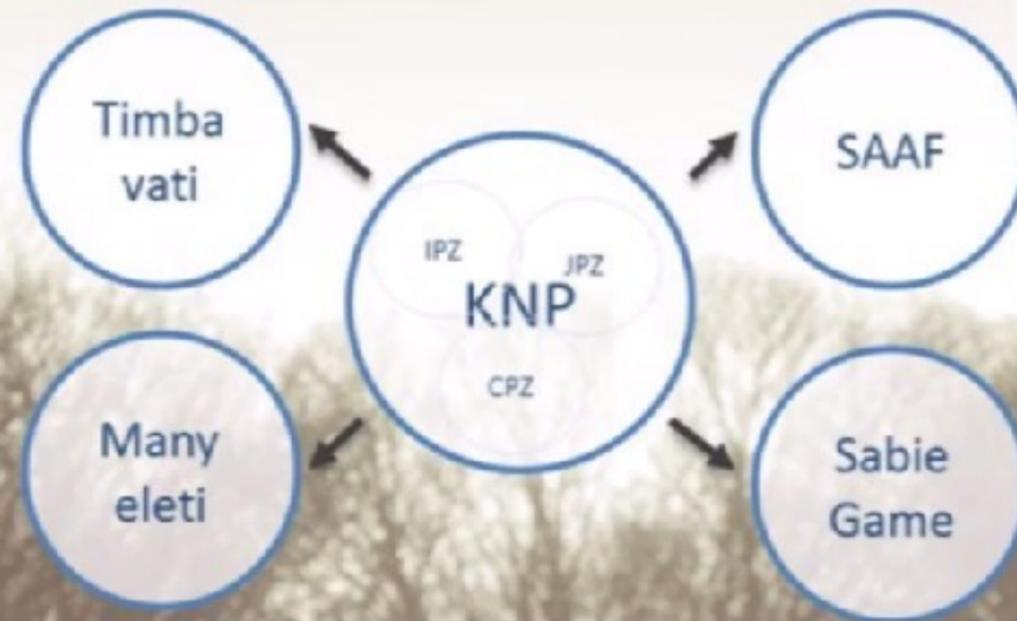
Workflow

Tracking

Services

Integration

Information Visibility Sharing



Training

Support

Kruger National Park activities - 2015

Kruger National Park and selected surrounding
parks, reserves participating

Collaboration with NGOs

Extension to other SADC Partners

Rest of Africa

Wildlife repository for Africa

Wildlife repository for Africa

CSIR

our future through science

cmore team

Alex Tertunen, Pieter Botha, Priaash Ramadeen, Shazia Vawda, Minnie van Ellewee, Herman Le Roux, Cobus Venter, Arno Duvenhage, Jaco van den Berg
Supported by Braam Greeff and Charl Petzer

The 5th CSIR
CONFERENCE
IDEAS THAT WORK
8-9 October 2015 | CSIR ICC

