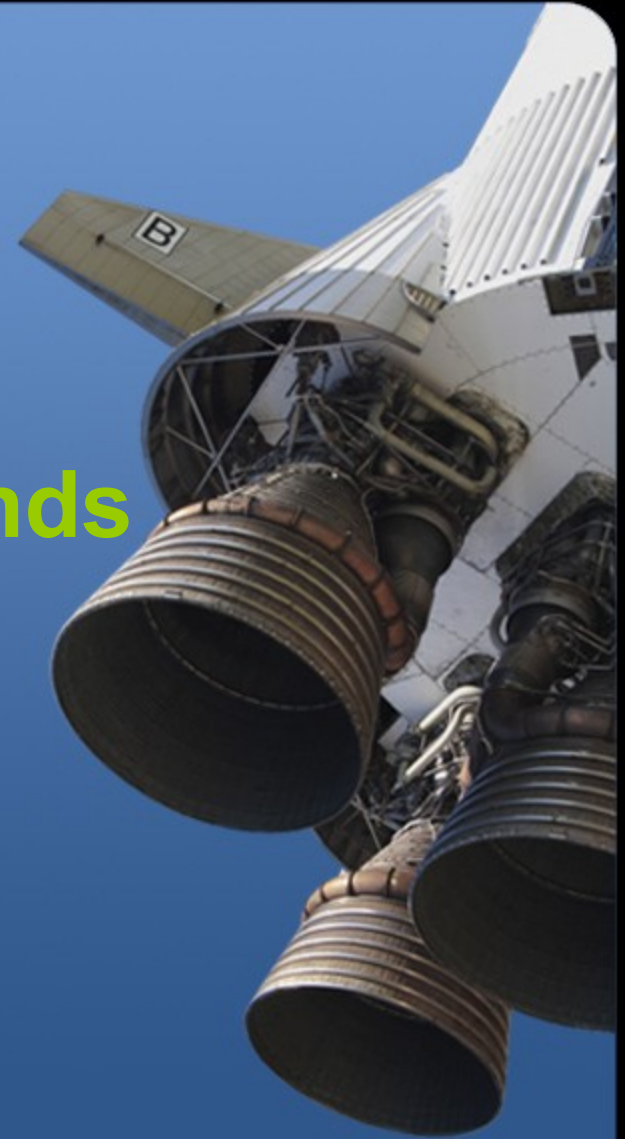




Amphinicy Technologies

SOFTWARE that understands the **SATELLITE** industry

Zagreb, Geodetski fakultet, October 2014





Agenda

- Amphinicy: the company
- Experience
- Q&A





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TECHNOLOGIES



Nothing is Impossible.®

Who we are...

About Amphinicy

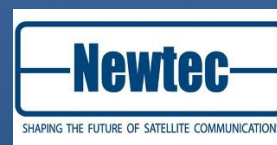
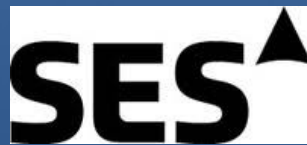




About Amphinicy 1/2

- **Software** solutions for the **satellite** industry
- Proficient and **reliable** software **partner**
- **Almost 20 years** (100+ projects) in the satellite industry

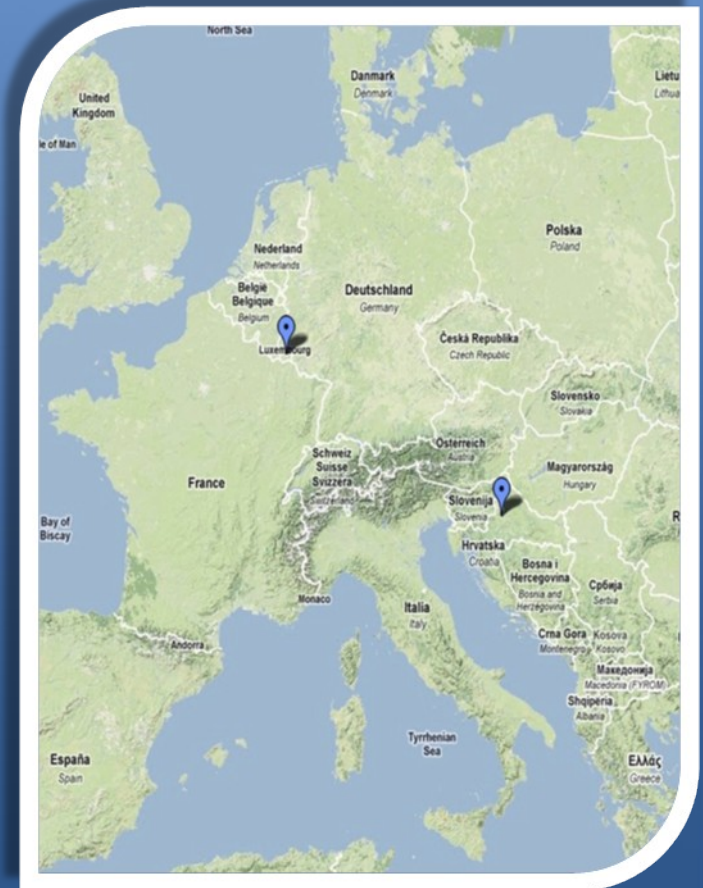
•  b... n:





About Amphinicy 2/2

- Locations: Zagreb & Luxembourg
- High-quality and ambitious team of **+30 engineers**
- Project and **Customer** orientation





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What kind of software?

Software for satellites





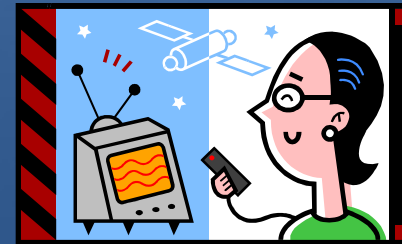
Big picture

- Q: What kind of software?

– Ground support



– Media





Satellite

- Lat. Satelles – attendant / guard - escort
- A body that revolves around another, primary, body
- Purpose:
 - Scientific explorations
 - Weather
 - Communication satellites (bent pipe)
 - Navigation
 - Earth observation
 - Military / Espionage





Case #1 - IOT

- Launch → vibrations, atmosphere
- Park orbit → Test
- Final orbit → Test
- System for In-Orbit testing!





IOTS Screenshots

SatelliteTestCockpit 200704122300

File Edit View Navigate Tools Window Help

Measurement System Selector

BTZ26BCK

AntennaBand F

Antenna

U/L Frequency

D/L Frequency

Recommended B

Script Engine

Script

Name

Version

Path

Description

Tests the ac

AdminClient Window

Launcher Server Advanced

Server	State
<input type="checkbox"/> MeasServer	-
<input type="checkbox"/> SimCsmServer	-
<input type="checkbox"/> LogServer	-
<input type="checkbox"/> DataServer	-
<input type="checkbox"/> WebReport	-
<input type="checkbox"/> WebAdmin	-
<input type="checkbox"/> FormulaServer	-
<input type="checkbox"/> FormulaServ...	-
<input type="checkbox"/> MCServer	-
<input type="checkbox"/> ACUServer	-
<input type="checkbox"/> PM1	-
<input type="checkbox"/> PM2	-
<input type="checkbox"/> PM3	-
<input type="checkbox"/> SA	-
<input type="checkbox"/> SYNTH1	-
<input type="checkbox"/> SYNTH2	-
<input type="checkbox"/> FG	-
<input type="checkbox"/> DM	-
<input type="checkbox"/> HPA1	-
<input type="checkbox"/> HPA2	-
<input type="checkbox"/> TLT1	-
<input type="checkbox"/> TLT2	-
<input type="checkbox"/> UpConverter1	-
<input type="checkbox"/> UpConverter2	-
<input type="checkbox"/> DownConver...	-
<input type="checkbox"/> MLA	-
<input type="checkbox"/> SimServer	-
<input checked="" type="checkbox"/> Simulator	RUN
<input type="checkbox"/> OrbitalInfor...	-

Buttons: Select All, Select None, CheckState, Launch Server(s), Stop Server(s)

Uplink

Output - TestSystems

cosmospneric accenation = 0.0

PM1 value = 2.61

Pfd(meas) calculation : PM1 + Gtcab - Ctcoc + Cat - Att - SL - 30

Uplink PFD = -87.93

SYNTH1 : power level set to : -22.09

Store PFD, EIRP and power level values in the report

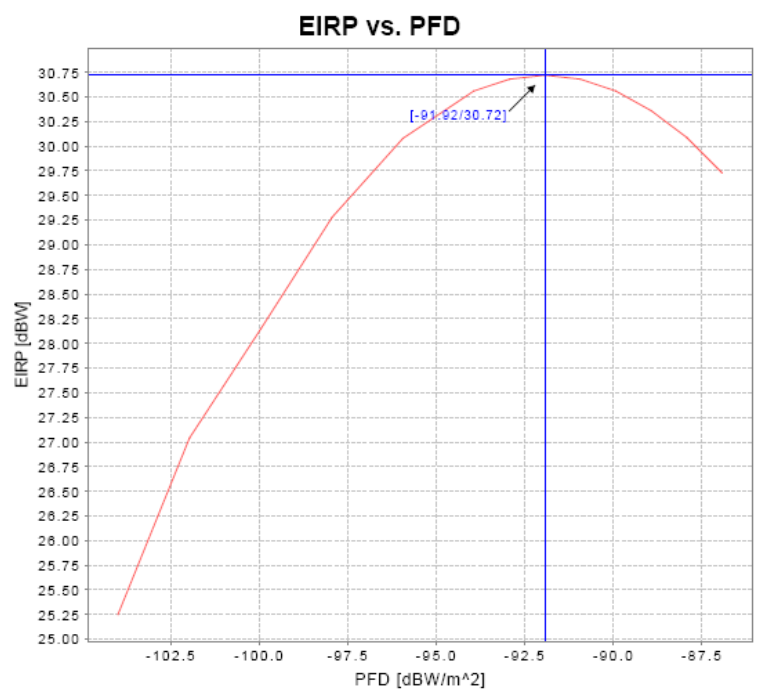
Output - Tests

Uplink and us

Test End date

TRANSFER CURVE

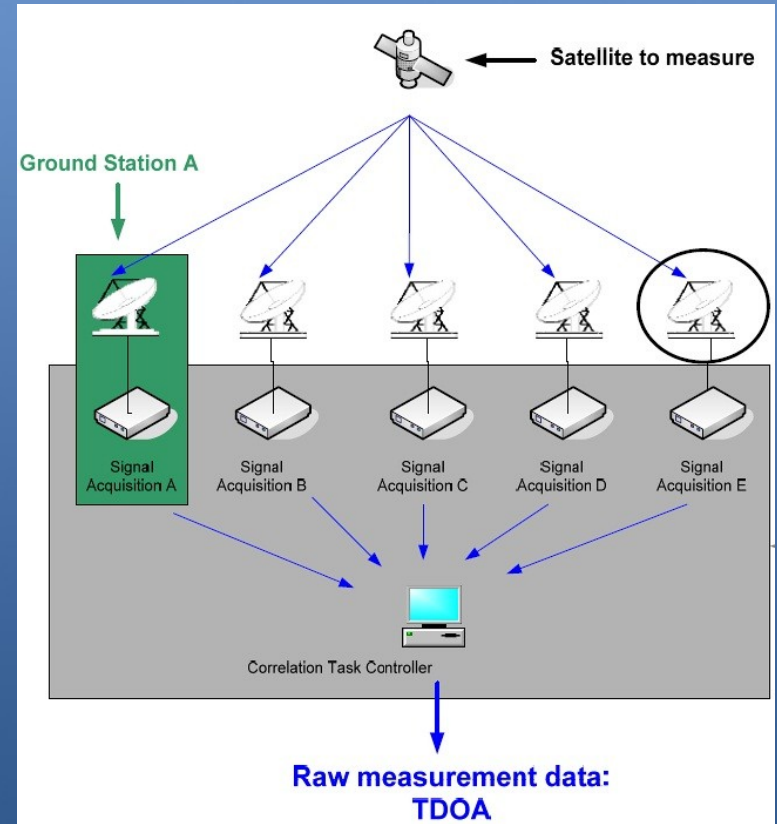
TEST NAME	CI-1	GROUP ID / TEST ID	21099 / 31162
GROUP NAME	Station Xfer test	RECEIVER	SIM REC V 1
COMMENTS		DLA_MODE	Linear
START TIME	2009-03-30 08:31:57	FCA	10.00 dB
END TIME	2009-03-30 08:36:11	U/L POLARIZATION	V
DURATION	4 min 14 s	D/L POLARIZATION	V
TRANSPONDER	C1	ACU CONTROL	Yes [0.0 dBm]
GCA	12.00 dB	D/L ATM ATT	0.00 dB
CHANNEL NAME	SIM_CH1	TELEMETRY ACCESS	Yes [4 s]
U/L FREQUENCY	13014.250 MHz		
D/L FREQUENCY	10964.250 MHz		
RADIOMETER	No		
U/L ATM ATT	0.00 dB		
DLATWTA	1		
EIRP AT SATURATION	30.72 dBW	PTS AT SATURATION	-91.92 dBW/m ²
MOD AT SATURATION	-37.73 dBm	TRANSLATION FREQ	2050.000000 MHz
BACKOFF	-20.00 dB		





Case #2 – Satellite Ranging

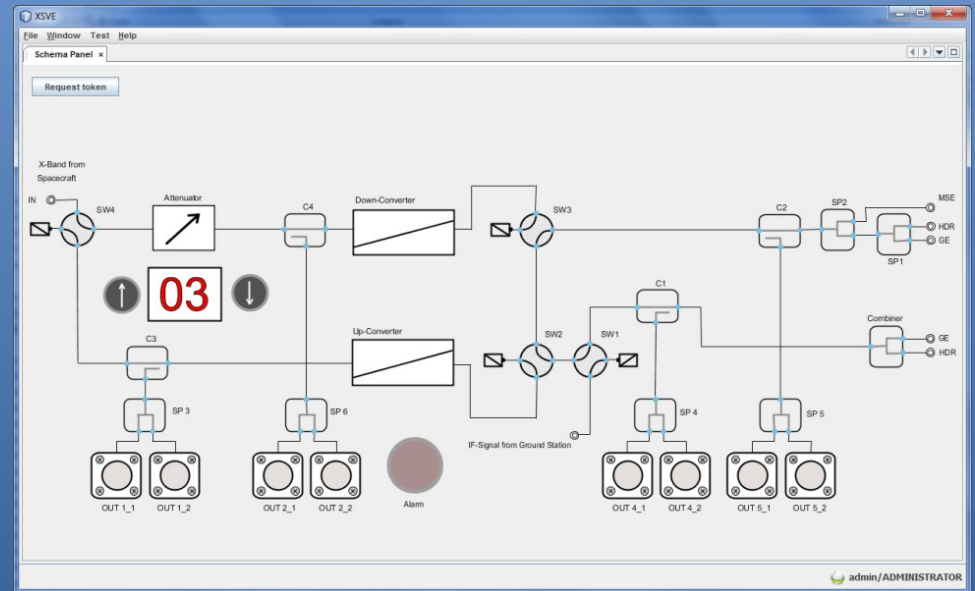
- Reversed GPS
- First of a kind
- London, Kiruna, Gibraltar, Betzdorf, Munich
- Configuring the system to range a satellite





Case #3 – Telemetry Analysis

- Earth observation
 - Copernicus:
 - Sentinels 1-5
 - EarthCARE
- Used for
 - Assembly (AIV)
 - Commissioning
- Debugger for EO telemetry
- Challenges: real time processing (800 MB/sec)





Case #3 – Telemetry Analysis

- Result – idea for Blink
- Ultra fast parser
- Recognized as innovative PoC idea by



BICORO

Poslovno - inovacijski centar Hrvatske
Business Innovation Center of Croatia



Case #4 – Monica

15+ years

SES/ESA projects

M&C abstraction

- Earth observation
- Reverse sat. positioning
- Upcoming projects

EXPERIENCE

- Simulators
- Alarming
- RF Equipment interfacing
- Scripting...

MONICA

M&C
framework
– solid base
for future
systems



Case #4 – Monica

monica



The image displays the Monica software interface across multiple devices. The central laptop screen shows a 'Schema Panel' with a complex logic diagram involving various components like 'Alarm', 'Switch', and 'Relay'. Below the diagram is a table with columns for 'Parameter Name', 'Value', 'Unit', and 'Description'. The table contains several rows of data, including 'switch position' and 'alarm'.

Parameter Name	Value	Unit	Description
switch position	37	name	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.
switch position	37	ms	Lorain sproun dalam ut amnet, connector adaptorng dit, Exam saculca nulla et est.

The tablet and smartphone screens also display the same interface, showing the logic diagram and the data table. The interface includes various navigation tabs and a sidebar menu.



Case #4 – Monica

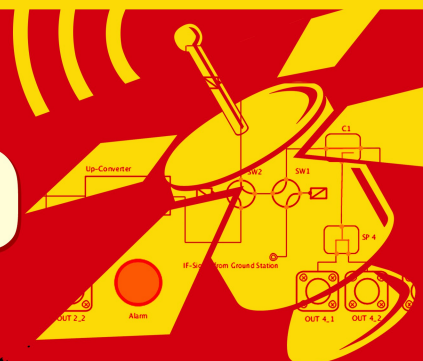
- Result – innovative solution recognized by



**TIRED OF
OLD FASHIONED
AND COMPLEX**

**M&C^{G2}
software**


STAY TUNED!



MONICA^{G2}
Monitor and Control Solution
COMING IN Q1 2014!

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- Modern HTML5 UI
- Easy to integrate
- Mobile ready
- Great scalability

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PLAY
BASEBALL
WITH THOSE!**



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- Mobile ready

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- ⊗ Advanced rule-based alarms
- ⊗ Elegant mimic schema
- ⊗ Extensive logging
- ⊗ Refined instrument adapter system



monica
Monitoring and Control Solution **G2**

The best framework to build your
M&C system on!

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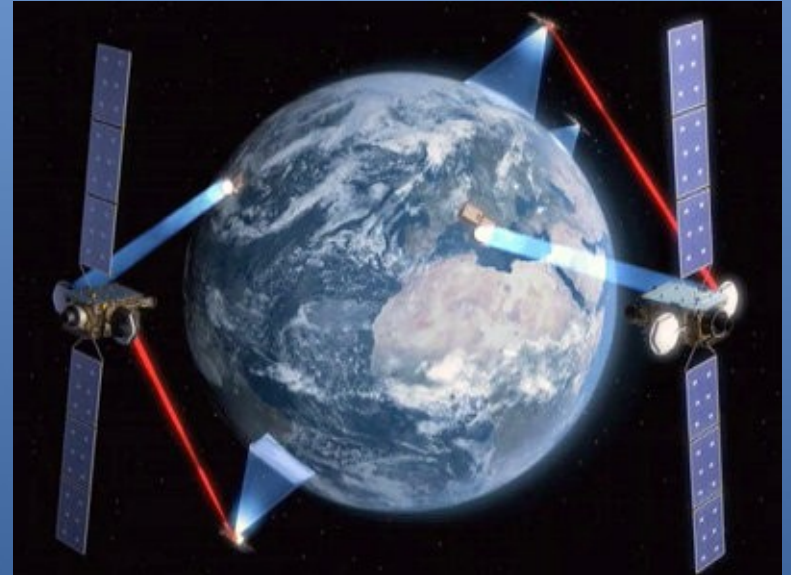


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Case #5 – Space Mirror

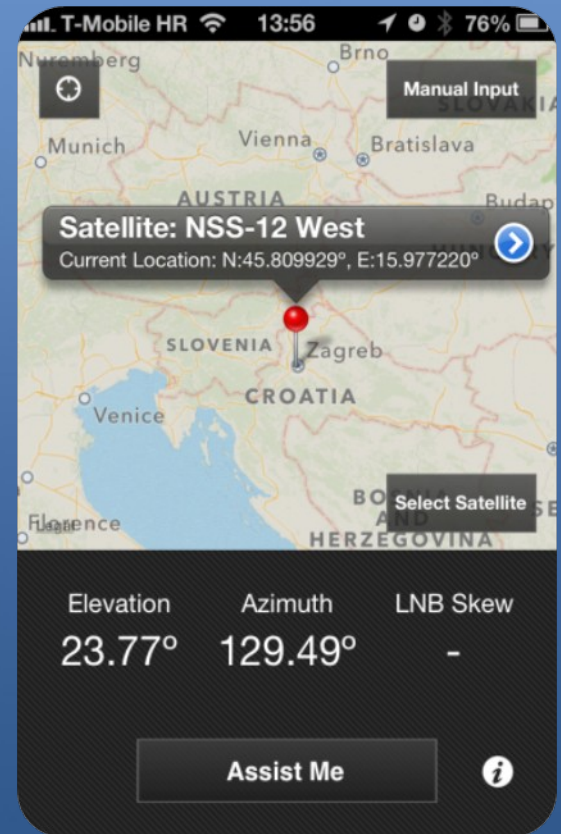
- Solves the biggest issue with LEO satellites
- Laser link to GEO sat – always-on communication
- Software for MOC
- MOC Monitor and Control
- Simulator of the whole system
- Billing subsystem





Case #6 – Emergency.Lu Mobile apps

- Disaster recovery system
- Mobile applications
- Automated Line-up application
- VoIP application
- Multi platform native apps





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Any questions? ...

Thanks!

