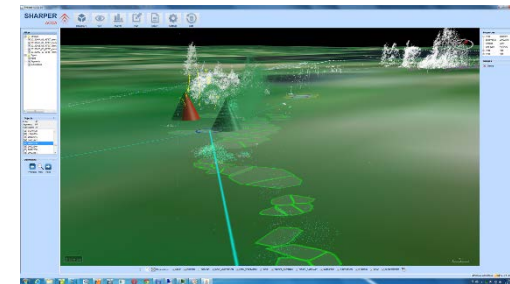
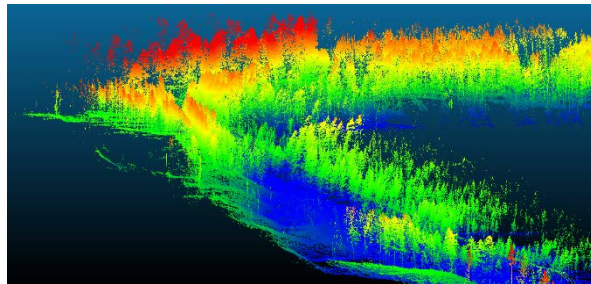
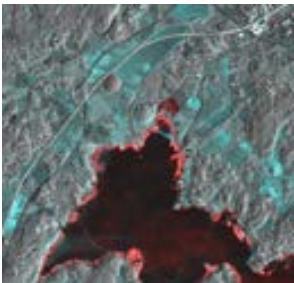


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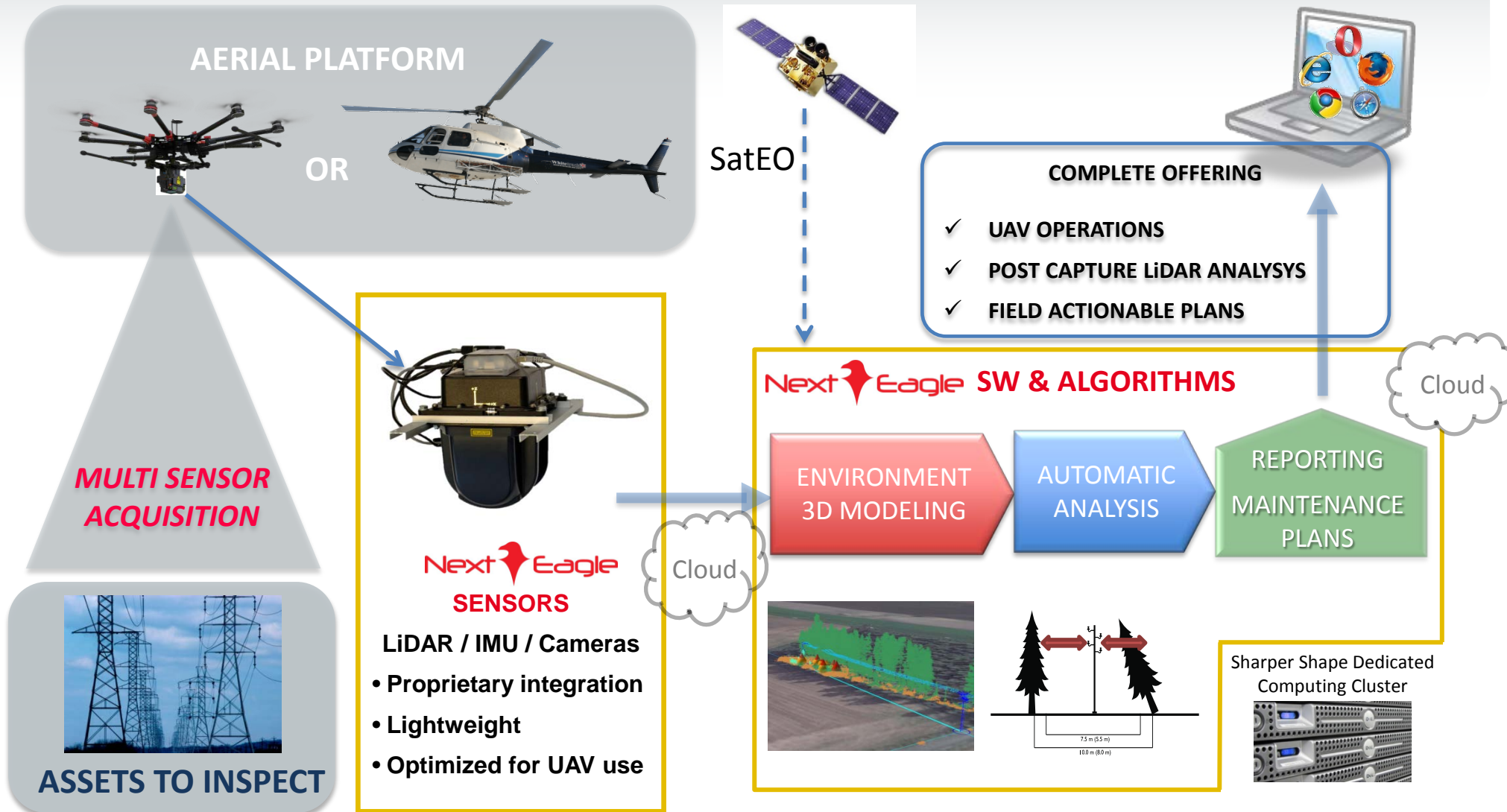
The Global Leader in UAV Based Automated Inspection

Vegetation management

- Legacy methods in vegetation inspection rely on human labor and are therefore:
 - Expensive and slow
 - Reliant on subjective evaluation of issue severity
- Sharper Shape's solution is based on:
 - Automatic SatEO data analysis to direct the inspections where they are most needed
 - Autonomous UAV's that are cable BVLOS flights
 - Fully automatic LiDAR data analysis

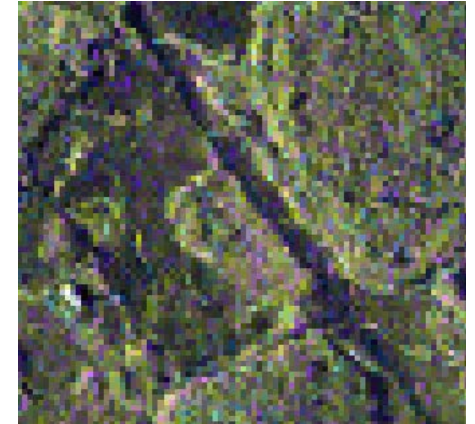
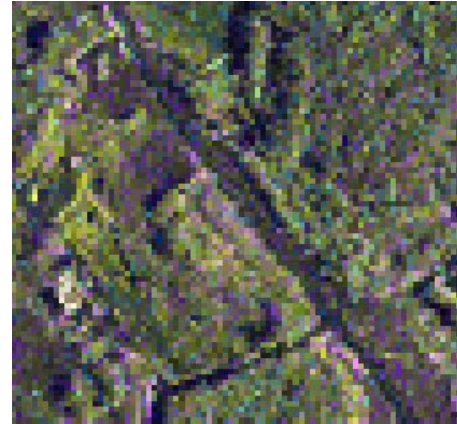
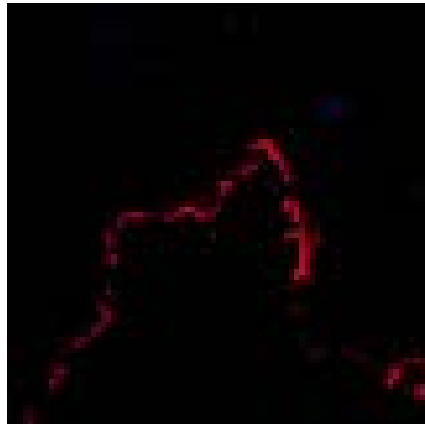
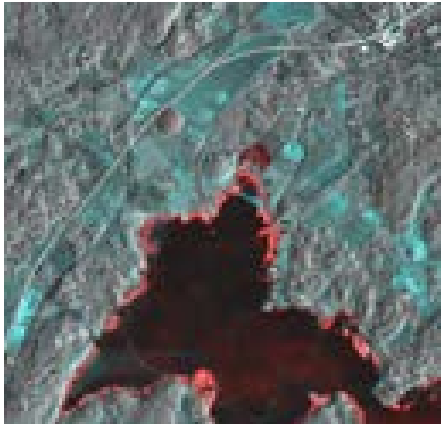


Sharper Shape Next Eagle[®] Solution



SatEO data analysis

- Possible uses for SatEO change detection:
 - Detecting Clear cutting areas near power lines
 - Detecting storm damages near power lines
 - Vegetation clearance supervision
 - Directing UAV inspections to areas where there are need for more thorough inspections



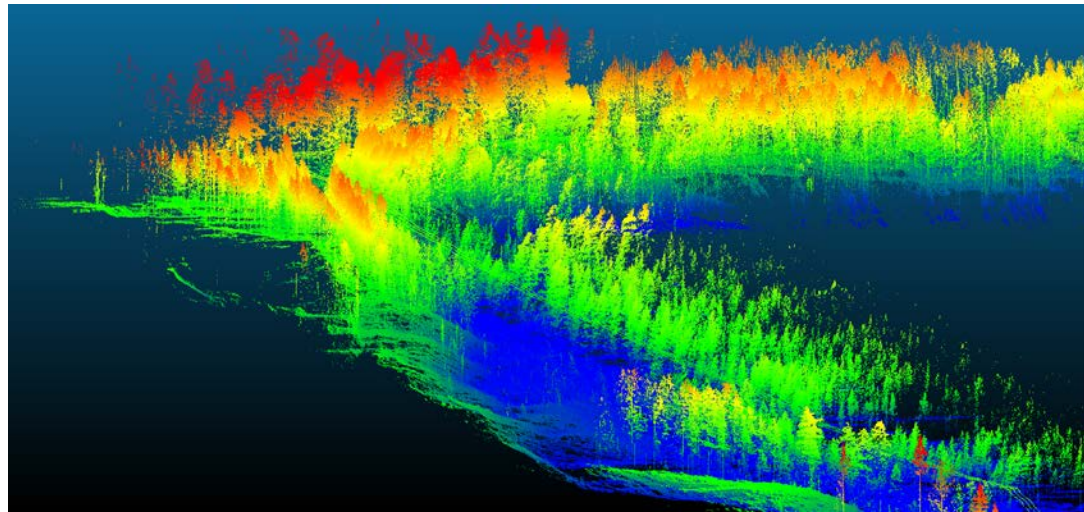
UAV solution

- Sharper Shape UAV's are capable Beyond Visual Line Of Sight flights with up to 1 hour flight time and up to 8 kg payload.
- Sharper Shapes UAV's are equipped with high performance LiDAR, High resolution cameras, onboard computer and storage unit and high precision IMU (Inertial Measurement Unit)



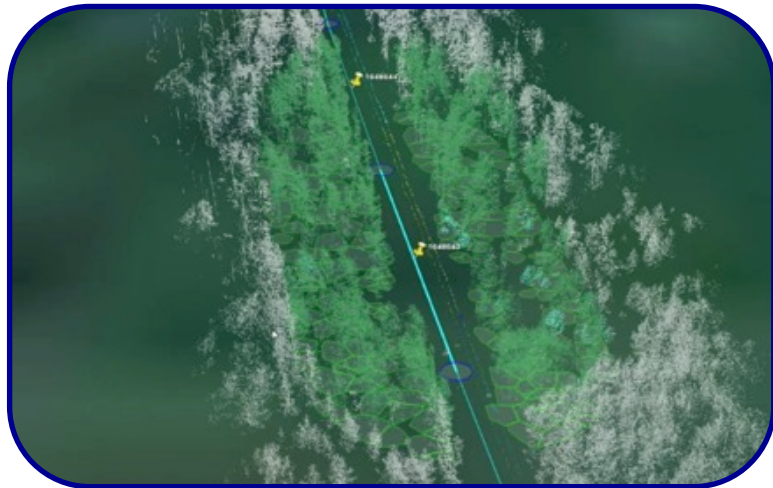
BVLOS UAV flights

- October 12, 2014 Sharper Shape received limited approval for large scale UAV flights Beyond Visual Line Of Sight (BVLOS)
- The first UAV company enabled to fly long distance powerline inspections with an advanced sensor system including LiDAR and high resolution cameras



Automatic Data Analysis

Next Eagle® patent-pending technology implements fast automated analysis & detection on assets with strict infrastructure conditions & risks



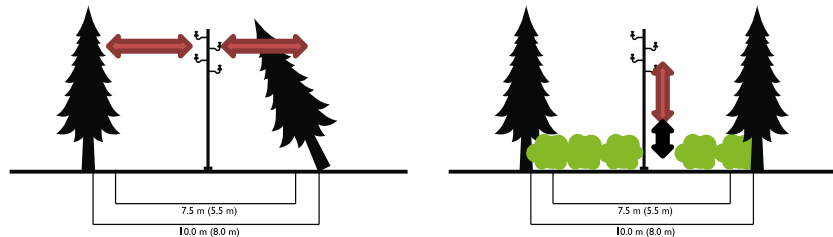
Fully parallel processing analysis



Automatic object detection



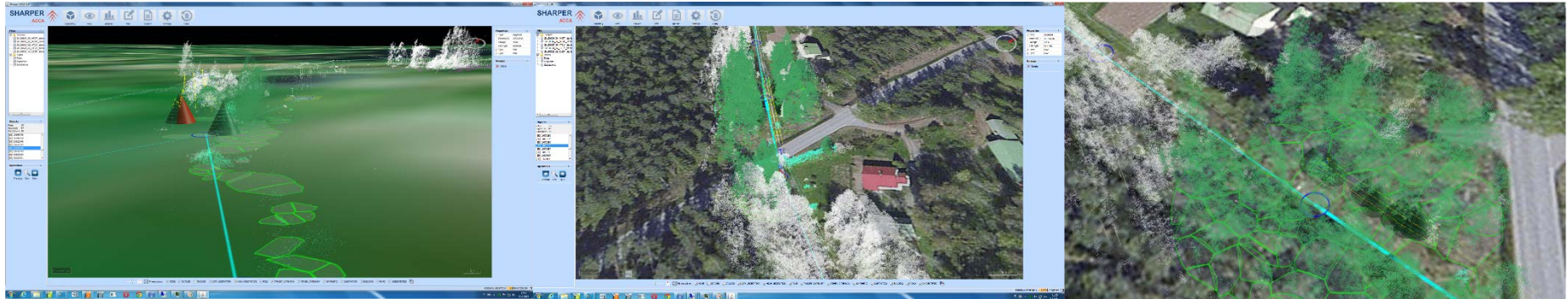
**Observations based on specific
Customer requirements**



Automatic detection of critical conditions

Prioritization problem

- Distribution companies can have hundreds of thousands of vegetation issues.
- Vegetation management need to be targeted to where it is most needed.
- Economically optimized vegetation clearance plans can reduce expected losses caused by interruptions up to 3-5 times more than legacy methods.



Sort out the priority for the vegetation management

SHARPER

Welcome, Admin

Work Type

Ground clearance

Branching

Maintenance Area	Length	KAH 2014	Maintenance Cost 2014	Efficiency 2014	KAH 2015
PUH-J04_Puh_taa_Voimal	90.72	132000	1320000	118.8	133320
SVA-J07_Mattäsvaara_lähtöä_muokattu	78.32	121000	1210000	108.9	122210
ILO-J09_Hattuvaara	165.92	111000	1110000	99.9	112110
JKA-J12_Vuokko	77.48	110000	1100000	99	111100
KRN-LEH-taajama	30.15	108000	1080000	97.2	109080
SVA-J05_Koriseva_lähtöä_muokattu	83.07	96000	960000	86.4	96960
RLA-J07_Vuonisahti	60.00	93000	930000	83.7	93930
PAL-J03_Heinävesi_uojarvi	60.16	93000	930000	83.7	93930
RLA-SVA-taajama	56.56	91000	910000	81.9	91910
TSN-J11_Palokki	58.74	83000	830000	74.7	83830
HEI-J14_Malikkila	56.94	81000	810000	72.9	81810
HEI-J11_Vihtari	50.93	77000	770000	69.3	77770
LIP-J12_Roukalahti	33.98	77000	770000	69.3	77770
KSL-J11_Punkaharju	51.80	76000	760000	68.4	76760
ENO-J08_Mönni	54.44	75000	750000	67.5	75750
KTE-J05_Juurikka_Riihi_Säynei	45.66	74000	740000	66.6	74740
HKV-J17_Vahalahti_Kompakka	38.81	72000	720000	64.8	72720
RLA-J05_Hattuvaara	139.74	71000	710000	63.9	71710
VSK-J06_Mäntyjärvi_Silka	37.03	70000	700000	63	70700
KSL-J12_Hummovaara	39.75	70000	700000	63	70700
KTE-J07_Selkue_Savikko	44.84	70000	700000	63	70700
MRV-J02_Kuhnusta	52.01	70000	700000	63	70700
POL-J10_Ruvaslahti	39.98	69000	690000	62.1	69690
TOH-J10_Akkala	33.70	68000	680000	61.2	68680
JKA-J11_Kajoo	50.13	67000	670000	60.3	67670
LIP-J10_Onkisaari	38.82	66000	660000	59.4	66660
VJR-J05_Risti	38.61	65000	650000	58.5	65650
KRN-J04_Romppala	41.02	64000	640000	57.6	64640
MNK-J12_Rasimäki_Säyneinen	38.38	64000	640000	57.6	64640
PAM-J06_Hilskoski	88.67	64000	640000	57.6	64640
POL-J11_Sola_Horsmanaho	42.04	64000	640000	57.6	64640
NUR-J09_Muiejärvi	67.60	62000	620000	55.8	62620
SVA-J03_Nurmijärvi	85.11	61000	610000	54.9	61610

No items selected

Work order summary

Year: 2015

PUH-J04_Puh_taa_Voimal

Owner

PKS

Work type

Ground clearance

Issue count

132

Length km

90.72

Reduced KAH

133320

Efficiency

118.80

Cost

1320000

Export

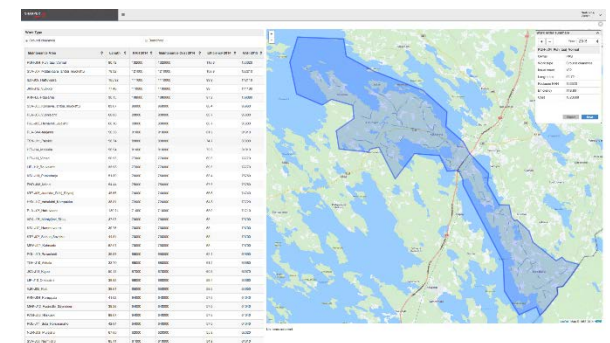
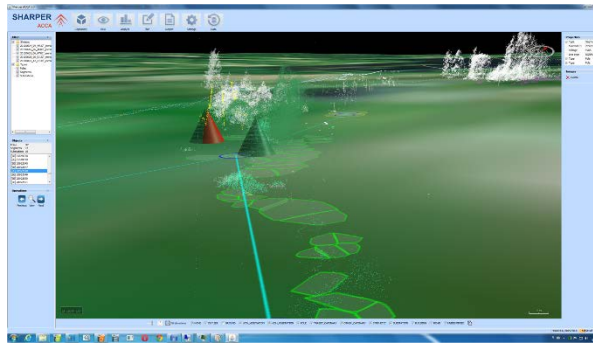
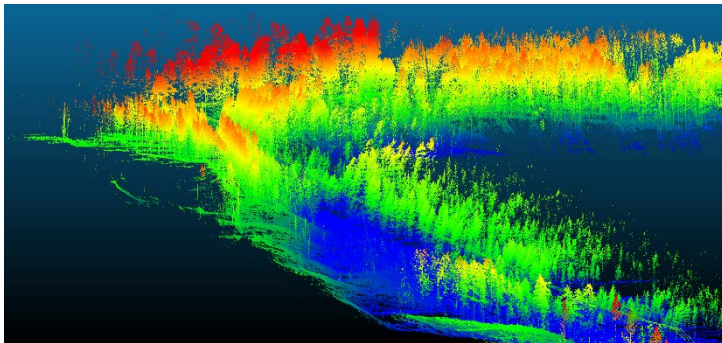
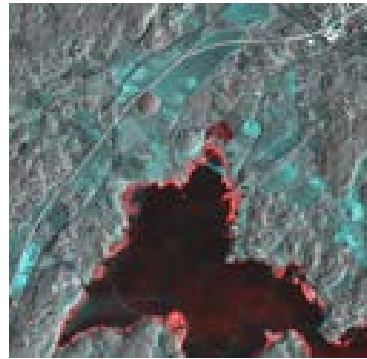
Save

Handle the areas in the priority order.

Proceed with planning.

Conclusions

- Combination of these new technologies allows us to take full control of our asset management.
- Our goal is to create full turn key solution that is both cheaper and more effective than any legacy method.



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Thank you!