



SPACE TRENDS & DRIVING FORCES

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Solna

2016-10-12

WE HELP EARTH BENEFIT FROM SPACE



www.sscspace.com

GLOBAL PRESENCE



LEADING GLOBAL PROVIDER OF ADVANCED SPACE SERVICES

1 bn SEK



500 employees
30 nationalities
22 locations
12 countries

Science Services
Satellite Management Services
Engineering Services

ESRANGE 50 YEAR ANNIVERSARY 2016



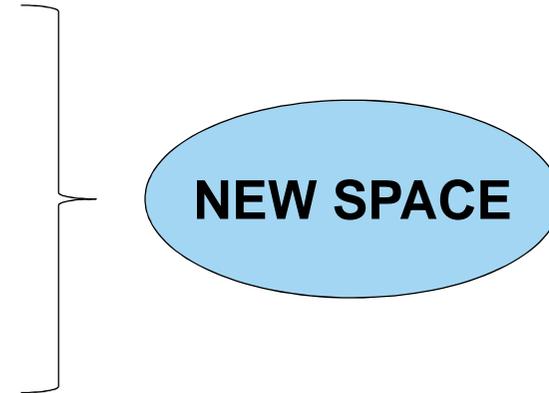
SPACE TRENDS & DRIVING FORCES



TRENDS

SOME KEY TRENDS

1. Launchers
2. Small satellites
3. New application
4. Commercialization
5. Private equity
6. Climate change
7. Space debris



SPACE TRENDS & DRIVING FORCES



DRIVING FORCES

The combination of...

- Technology Development – Commercialization – Standardization
– Automation – Big Data & Analytics – Machine Learning

and...

- Global Transparency Opportunities
- Communication & Information Consumption

“Internet to everyone and everything, everywhere”

...Is a real game changer...

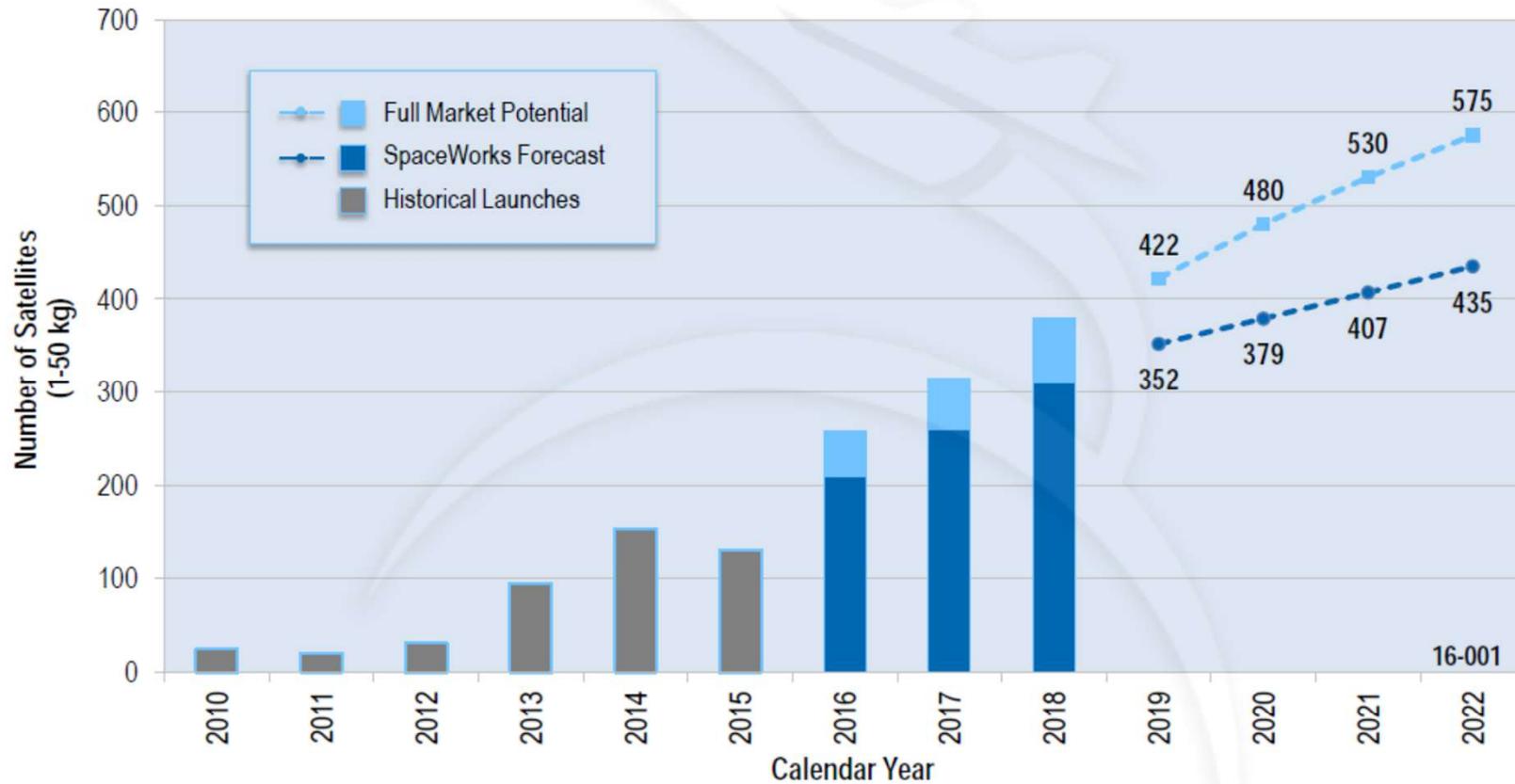
Driving...

- Dramatically lower costs
- New innovative applications
- Speed of change



Nano/Microsatellite Launch History and Forecast (1 - 50 kg)

Projections based on announced and future plans of developers and programs indicate as many as 3,000 nano/microsatellites will require a launch from 2016 through 2022



The 2016 Full Market Potential dataset is a combination of publically announced launch intentions, market research, and qualitative/quantitative assessments to account for future activities and programs.

The 2016 SpaceWorks Forecast dataset reflects SpaceWorks' expert value judgment on the likely market outcome.

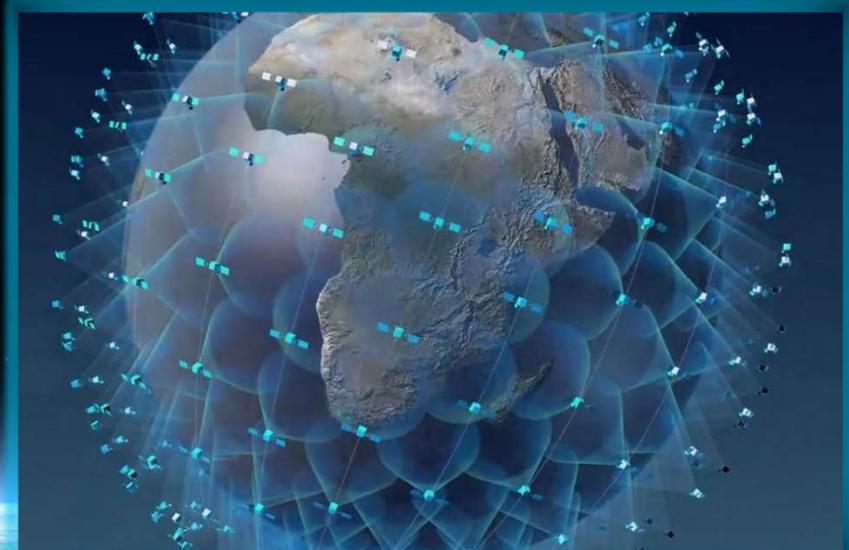
* Please see End Notes 1, 2, 3, 4, and 5.

COMMERCIAL LAUNCHERS



Global Transparency and Connectivity

Satellite constellations to provide global surveillance and access to information



Multi-sensor constellations provide real time high Resolution information of the planet, including land, oceans and atmosphere, available to everybody by the space based internet

Public



Communication constellations provide global access to internet and information, enabling global education, enlightening and understanding, enhancing human rights, democracy, stability and the prospect of a sustainable planet

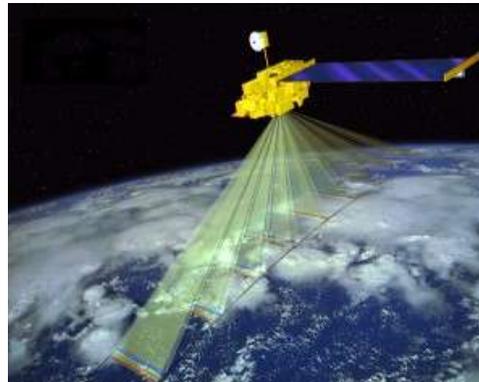
NEW SPACE BASED APPLICATIONS



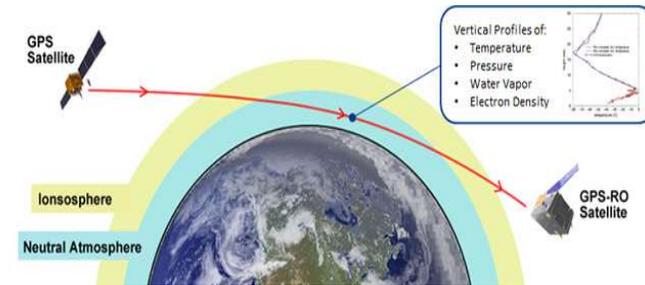
Satellite Communication



Earth Observation



Radio Occultation



Internet to everyone



Public

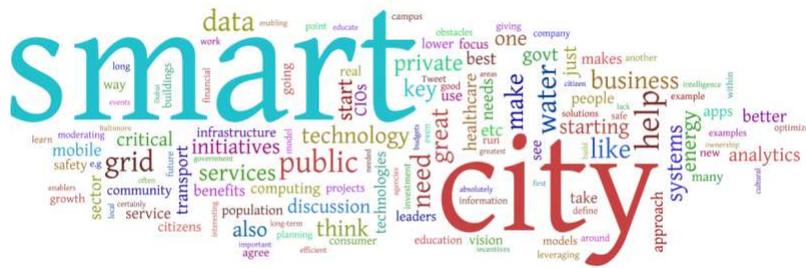
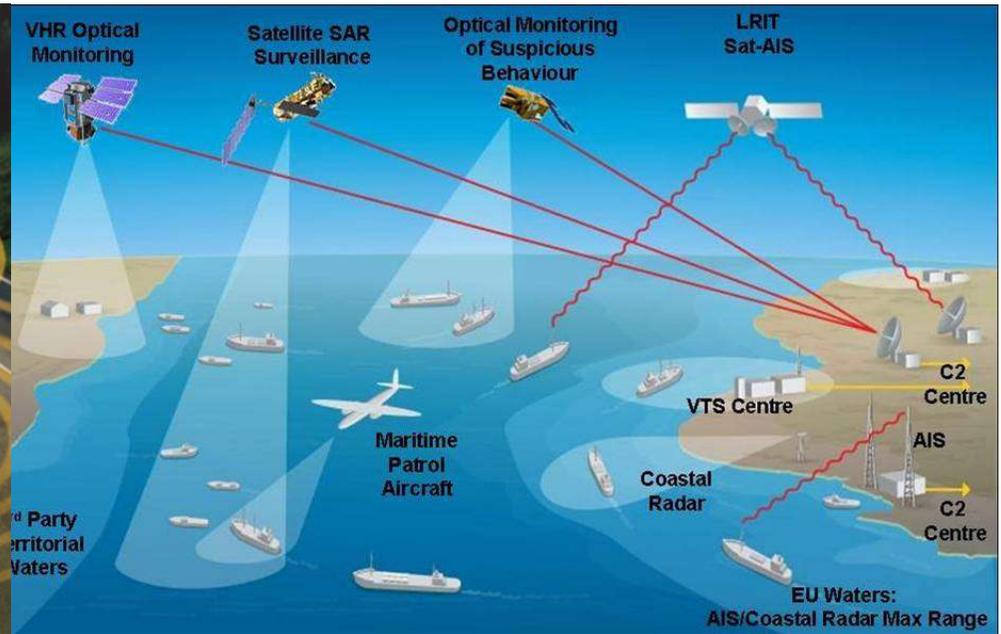
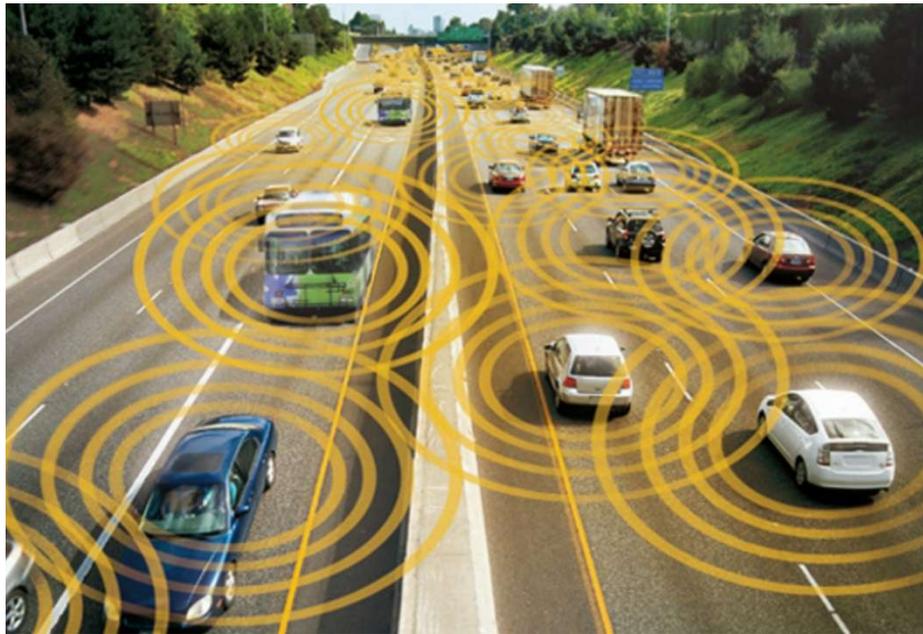
Higher resolution and frequency of update



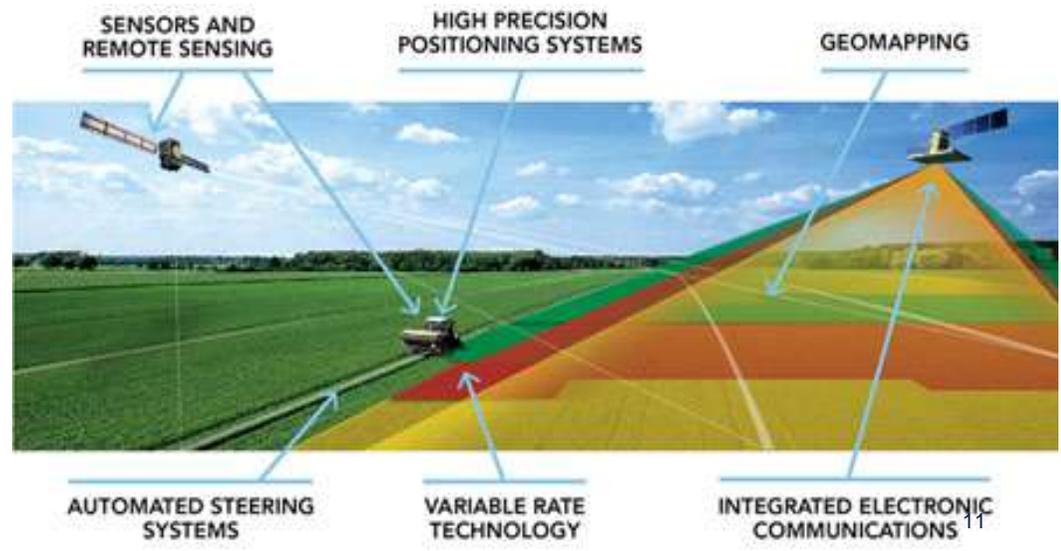
Better weather predictions



NEW APPLICATIONS & NEW USERS



Public





TERRA BELLA (SKYBOX)

GLOBAL EARTH OBSERVATION SERVICE

Constellation

19 satellites

Mass

110kg

Size

60x60x95 cm

Downlink

470 Mbit/s

Resolution

<90 cm

Revisit

7 times/day

Orbit

500 km SSO

Inclination

97.4 degrees



TERRA BELLA (SKYBOX)



ONEWEB

GLOBAL INTERNET SERVICE



The infographic features a central image of the Earth with a dense network of blue lines and dots representing a satellite constellation. Three callout boxes with white icons and text are connected to the constellation by thin white lines.

A REVOLUTION IN SATELLITE MANUFACTURING
No one has ever built a satellite in one day... we will build several every day!

TOTAL COVERAGE
Internet to everyone, everywhere on Earth



A photograph of a white satellite dish antenna mounted on a base. The dish has the OneWeb logo and other markings on its side.

GLOBAL LOW EARTH ORBIT CONSTELLATION
Providing high-speed internet connectivity equivalent to terrestrial fiber-optic networks

PRIVATE INVESTMENTS IN “NEW SPACE”



VENTURE FUNDS



ENTREPRENEURS



Elon Musk
SpaceX



Richard Branson
Virgin Galactic



Jeff Bezos
Blue Origin



Eric Schmidt
Planetary
Resources, Planet
Labs



Bill Gates
Kymeta



Paul Allen
Stratolaunch

TECHNOLOGY COMPANIES



AIRBUS



Public

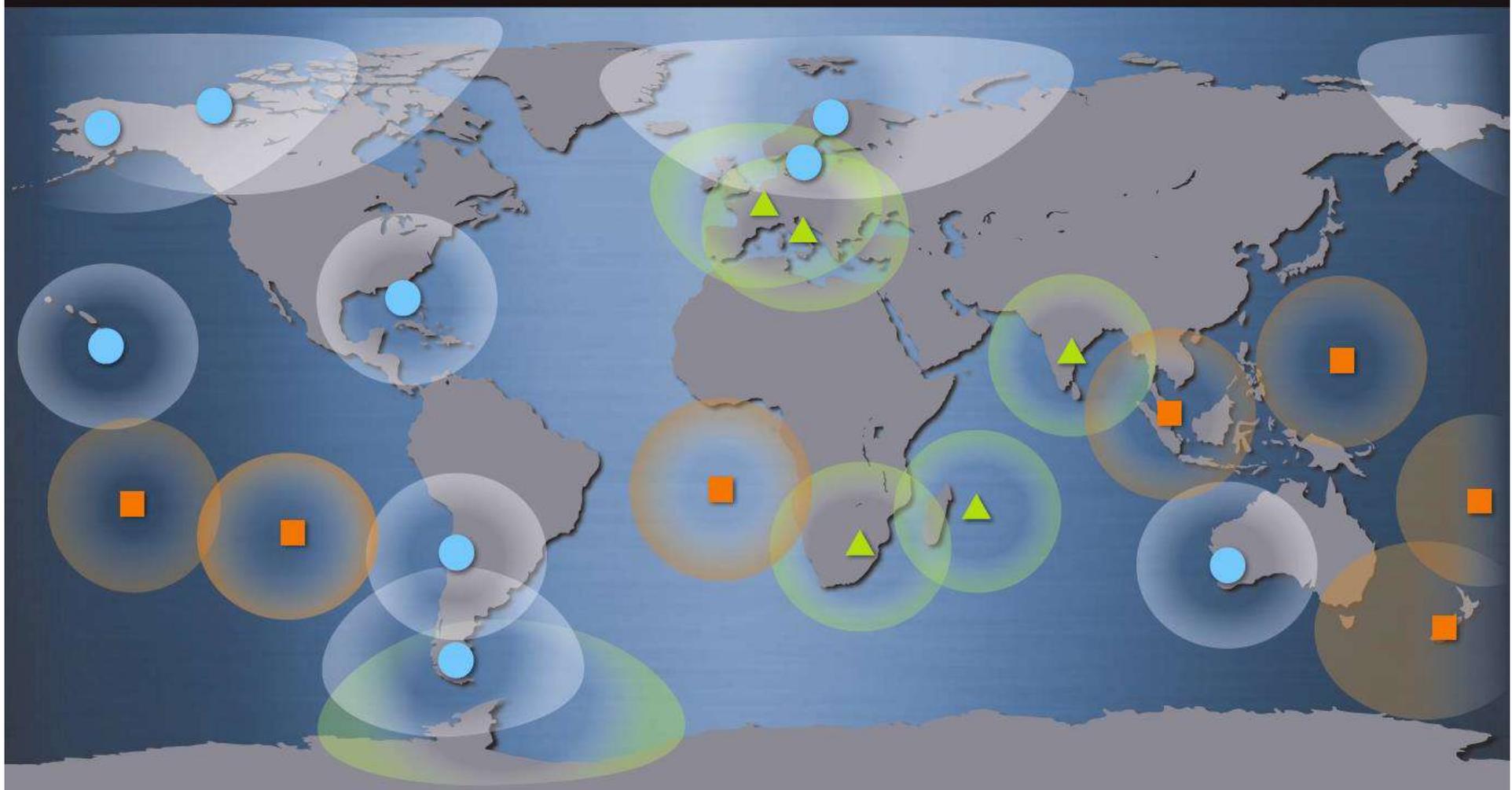


SAMSUNG

SSC UNIVERSAL SPACE NETWORK



SSC's Universal Space Network



CLIMATE CHANGE



SPACE DEBRIS

A GLOBAL CHALLENGE

	size	number	% total mass
	> 10 cm	> 20,000	99.93
	1 - 10 cm	> 600,000	0.035
	< 1 cm	> 35,000,000	0.035
	total	> 35,000,000	> 6,000 tons

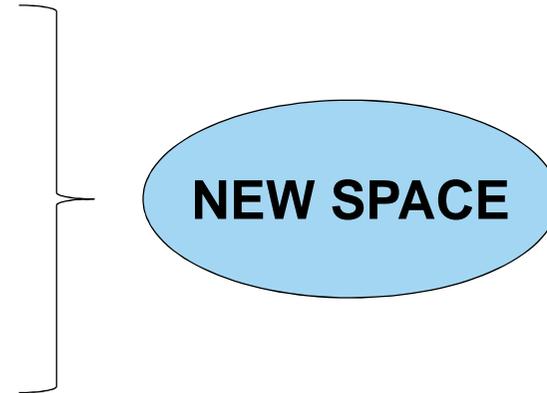
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