



# Digital Twins Power Smart Urban Governance with Precision3D

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company confidential and proprietary

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**MAXAR**



# DIGITAL TWINS POWER SMART URBAN GOVERNANCE WITH PRECISION3D

- What do we do?
- How do we do it?
- Why do we do it?
- Your benefits!





# PRECISION3D DATA SUITE, HOW IT'S MADE

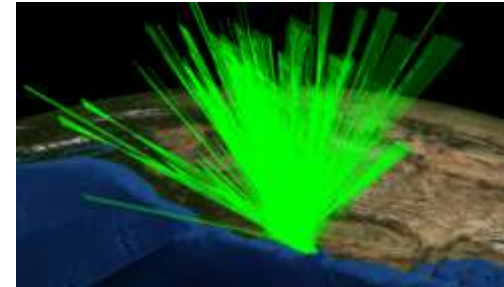
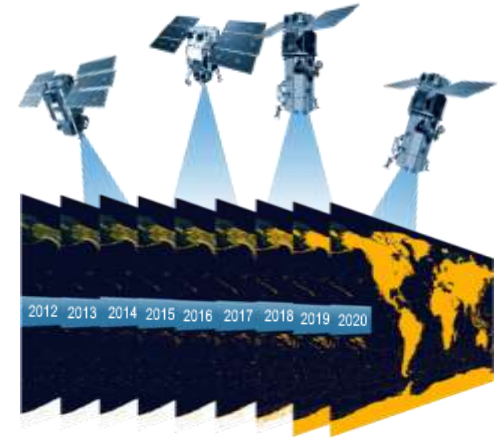
## Global Coverage

- Consistent coverage from commercial satellite images
- Sensor agnostic

## Automatic processing

## A unique technology

## Automated derivative products





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- Advanced algorithms and machine learning
- Massive scale

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- No need for ground control points
- True photorealistic textures on all sides

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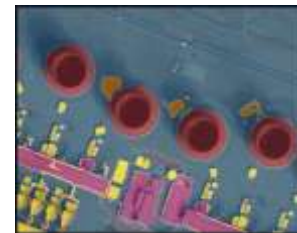
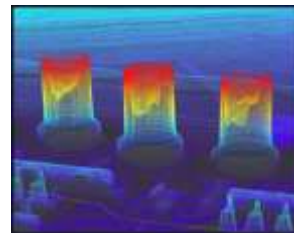
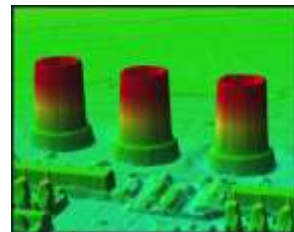
- Datacenter and cloud computing
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## A unique technology

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- No need for ground control points
- True photorealistic textures on all sides

## Automated derivative products

- 50 cm resolution
- 3 m absolute accuracy in all dimensions (SE90)





# THE MAXAR EARTH OBSERVATION SATELLITE CONSTELLATION

## RETIRED / IMAGERY AVAILABLE IN ARCHIVE



### IKONOS

82 cm resolution  
9 m CE90  
6 m RMSE



### QuickBird

65 cm resolution  
23 m CE90  
10.8 m RMSE



### WorldView-4

31 cm resolution  
5 m CE90  
9.7 m RMSE

## ON-ORBIT / NEW AND ARCHIVE IMAGERY AVAILABLE



### WorldView-1

50 cm resolution  
<4 m CE90  
3 m RMSE



### GeoEye-1

41 cm resolution  
<3 m CE90  
2.7 m RMSE



### WorldView-2

46 cm resolution  
<3.5 m CE90  
3 m RMSE



### WorldView-3

31 cm resolution  
<3.5 m CE90  
2.5 m RMSE

## SOON to be LAUNCHED



### WorldView Legion

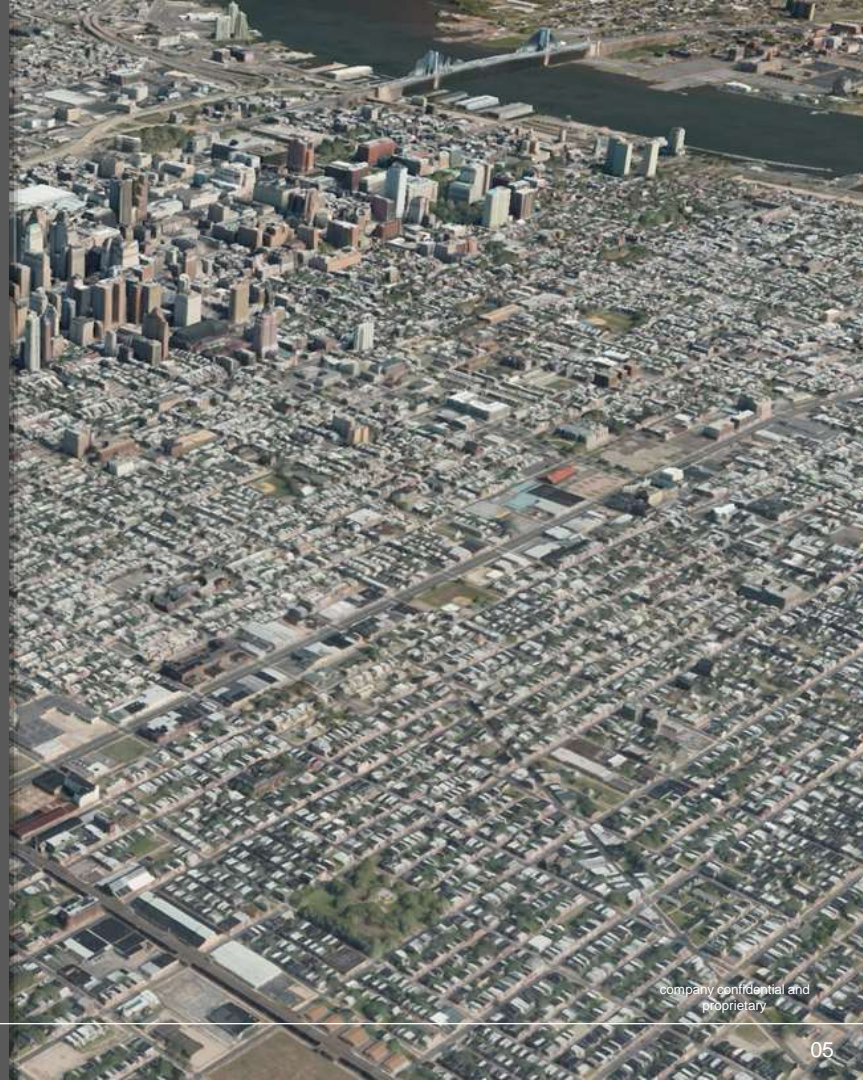
30 cm class  
resolution  
1.5 m RMSE

## Current Capacity

### High-res 3D Surface Model (50cm)

2.7M km<sup>2</sup> / month, with full QA/QC, in 1-deg geocells

+58,000,000 km<sup>2</sup> available on the shelf  
(US @ 7.6M, World @ 150M, source Wikipedia)







**Format:** Esri I3S, Collada, 3D Tiles, Precision3D r3db

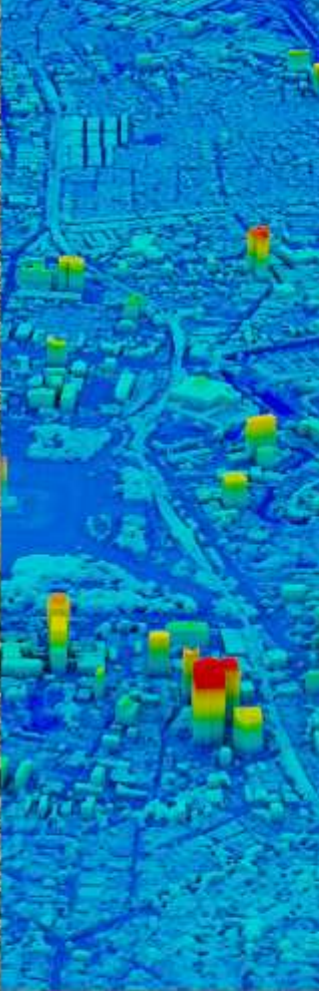
**Resolution:** From 50cm



True Ortho



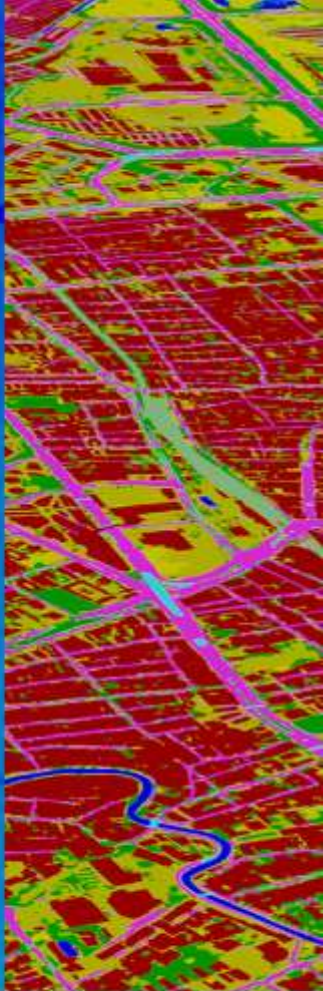
Buildings & vegetation



Digital Surface Model



Digital Terrain Model



Land Cover

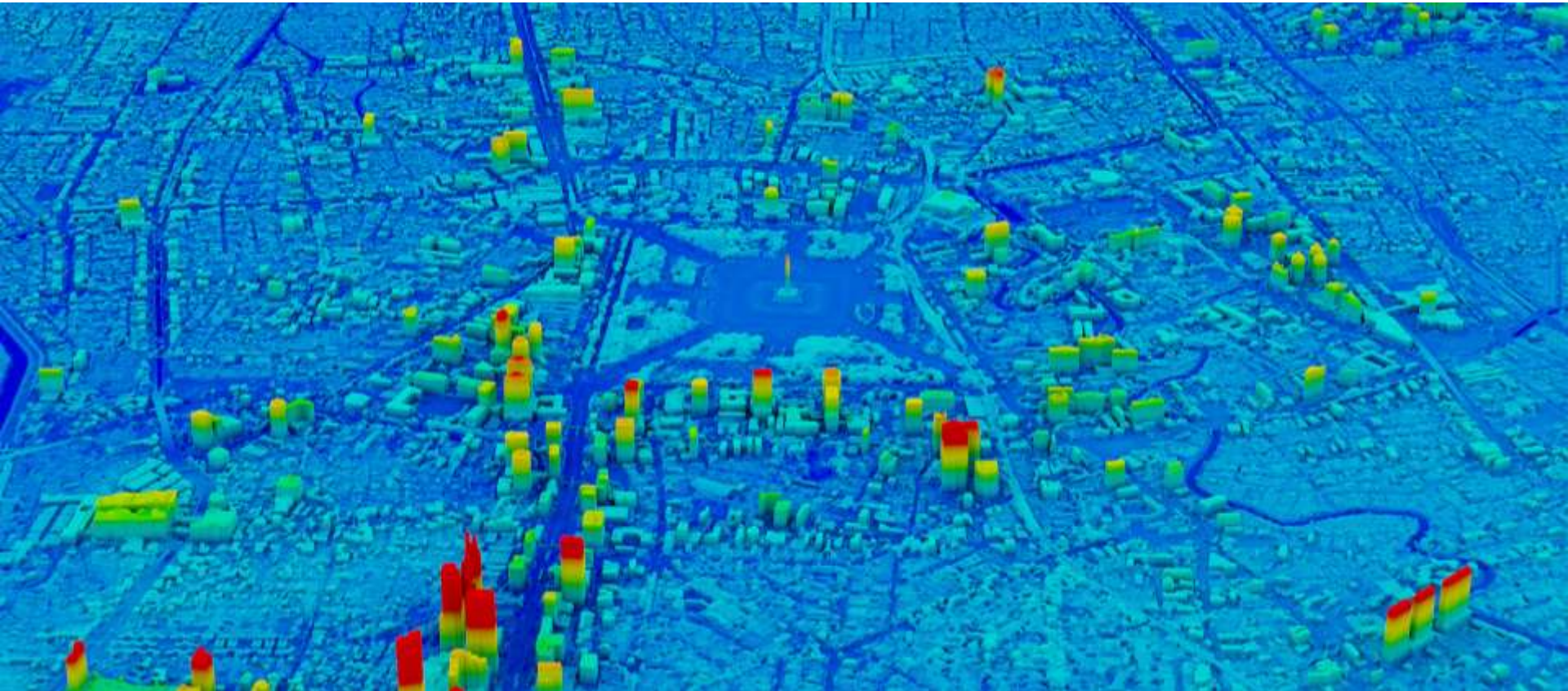


# PRECISION 3D 3D SURFACE MODEL



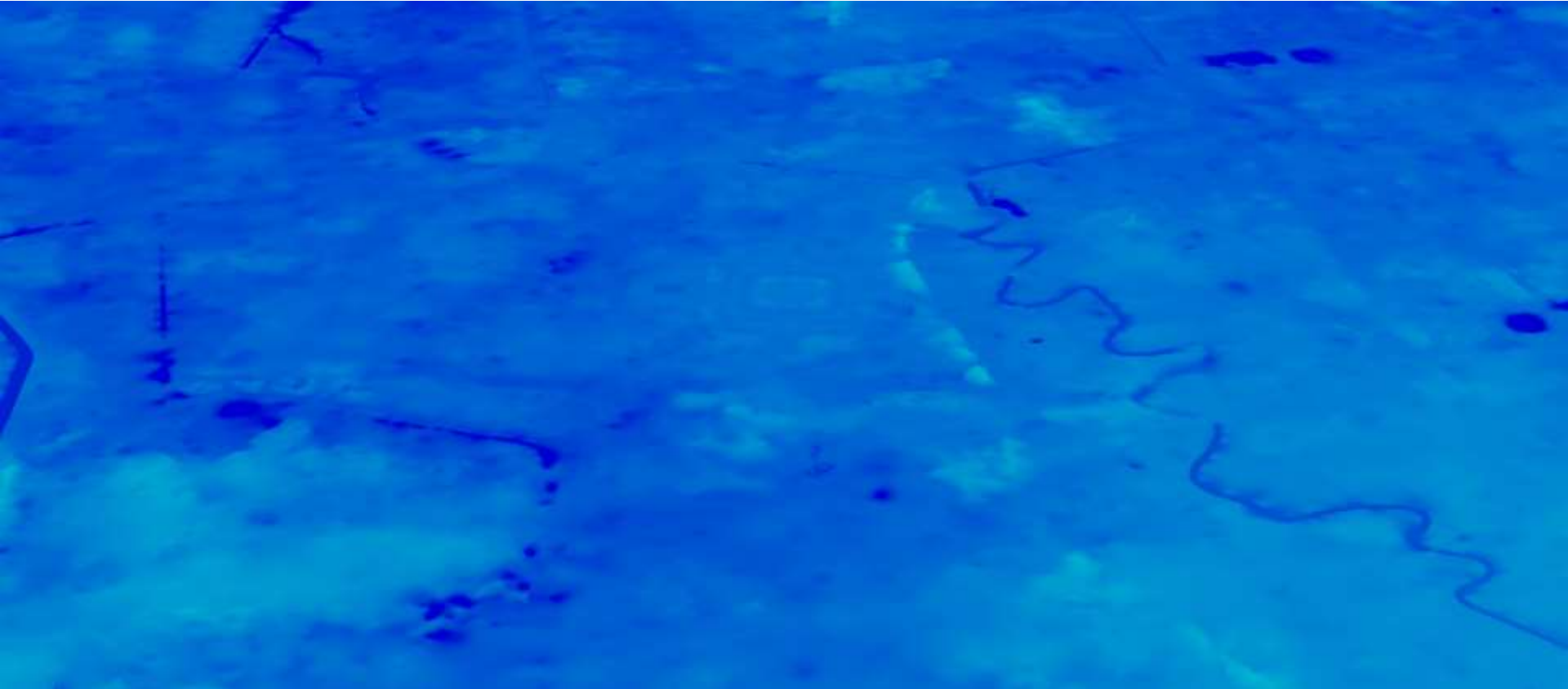


# PRECISION 3D DIGITAL SURFACE MODEL





# PRECISION 3D DIGITAL TERRAIN MODEL





# Classification



## Name:

Ground

Low Vegetation (0.5-2 m)

Medium Vegetation (2-5m)

High Vegetation + 5m

Building/man-made structures

Water

Roads

*Custom class on request*



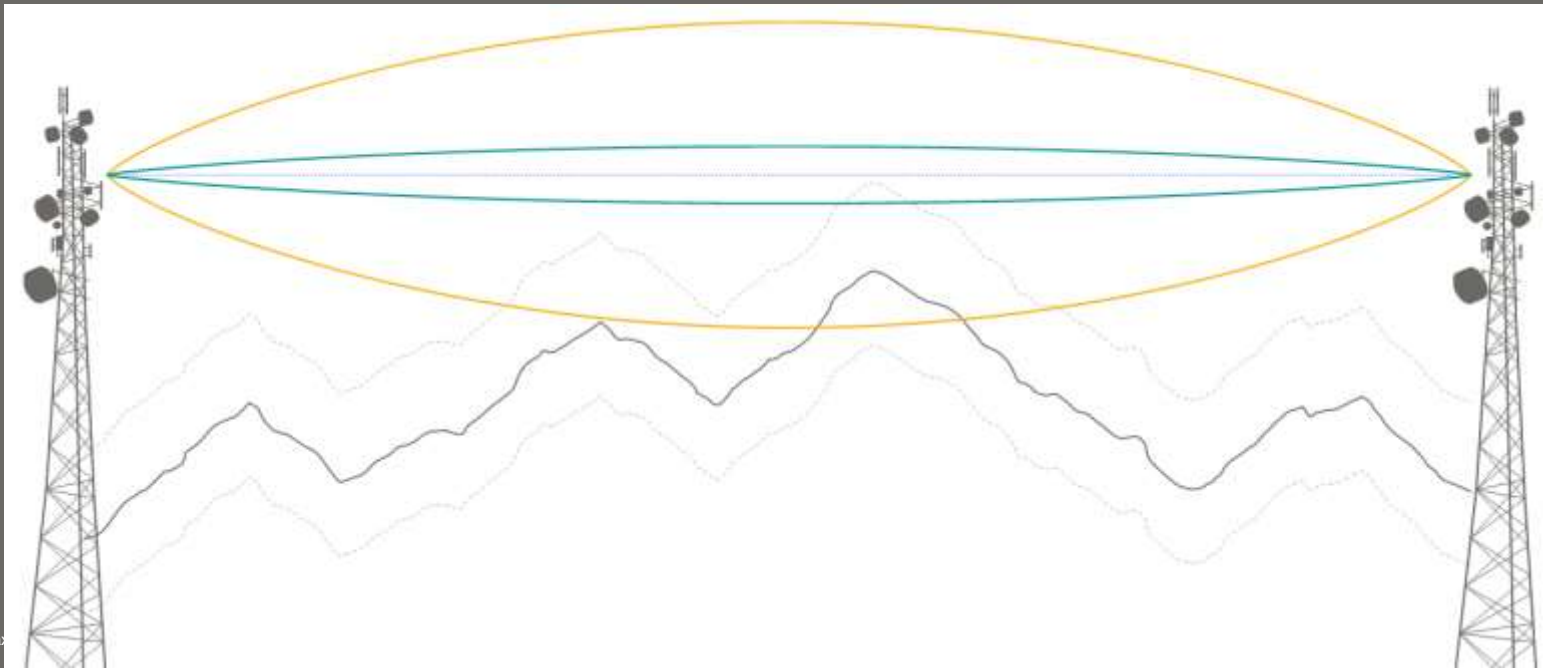
# Virtual Reality solutions, Visual displays, simulation tools etc. (DTM)





# TELCO 5G planning, Impact of small obstructions in the higher frequencies

- 2 m of uncertainty in high-frequencies kills the link
- You cannot make the judgement call with this level of uncertainty
- Accuracy of Geodata should match the level of the frequency used
- Accuracy is key in the high-frequencies







# Flooding analysis 2 and 5 meter



# ✕ Flooding analysis 2 and 5 meter





# Flooding analysis 2 and 5 meter





# Cadastre, DTM and Building Vectors





## P3DR – Precision3D Registration

### Accurately Align Everything

- 3D registration is the process of attributing each pixel in an image with a specific location on Earth.
- The 3D registration is a fully automated process, based on image correlation techniques.
- The key to P3DR is highly accurate reference data—Maxar’s 3D Surface Model of Earth.
- Video - <https://www.youtube.com/watch?v=kO4sRJWrJGk>



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