

# Space Hub Sutherland

Assessment Meeting  
CAA, Aviation House, Gatwick Airport

5<sup>th</sup> June 2019



Highlands and Islands Enterprise  
Iomairt na Gàidhealtachd 's nan Eilean

# Space Hub Sutherland Assessment Meeting

5<sup>th</sup> June 2019



## Safety and Airspace Regulation Group

### Agenda for CAP1616 Assessment Meeting

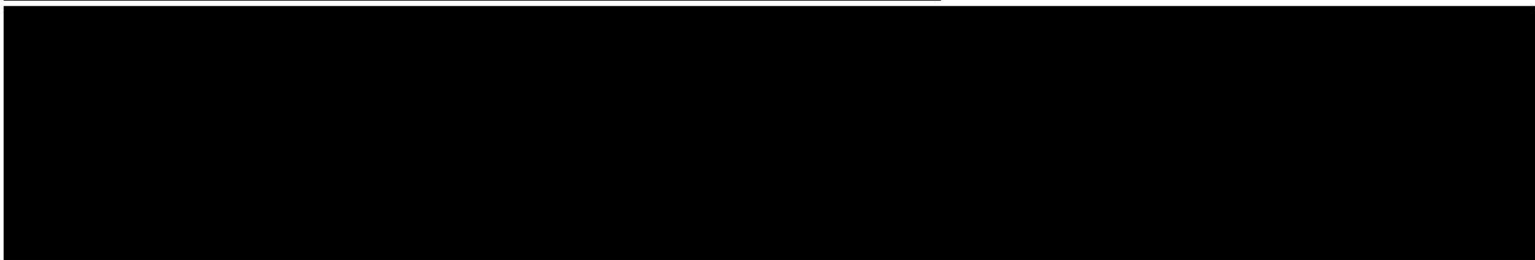
- |    |   |                |
|----|---|----------------|
| 1. | Introduction/Apologies for Absence                            | CAA            |
| 2. | Statement of Need (discussion & review)                       | All            |
| 3. | Issues or opportunities arising from proposed change          | Change Sponsor |
| 4. | Options to exploit opportunities or address issues identified | Change Sponsor |
| 5. | Provisional indication of the level and process requirements  | CAA            |
| 6. | Provisional process timescales                                | All            |
| 7. | Next Steps  | All            |
| 8. | AOB   | All            |

# Introduction

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- This project is a novel concept for the UK
- It is of strategic national importance
- Has the backing of the UKSA, UK Government  
Scottish Government and is partnering with



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# Statement of Need

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HIE is seeking to protect Vertical Launches from the UK's first Spaceport. Protection will be required from surface up to 66,000 ft and will be required prior to each launch and for a period after launch on an occasional basis. It is envisaged that an appropriate volume of airspace will be required to ensure that civil flying activities are separated from launch activity, and that all aviation activities can continue safely.

# Project Overview

- Create a launch facility for Vertical Lift in the UK
- Team up with partners to launch from Sutherland
- Develop supply chain and support services
- Timeline has excellent fit with need for diversified jobs and new sector




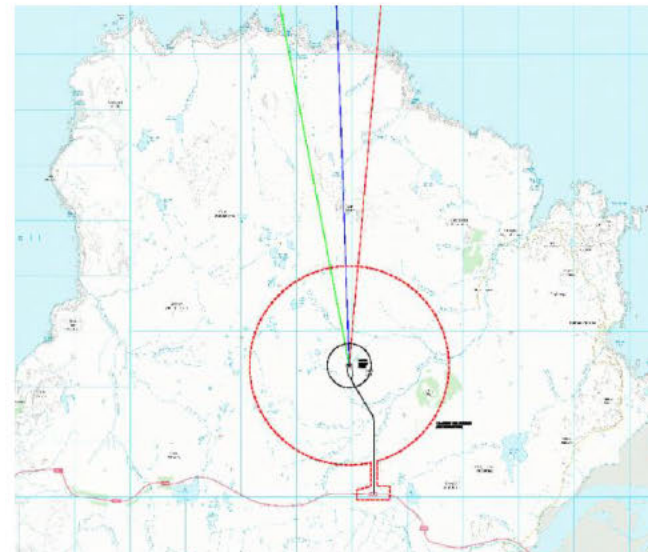
# Government Approach

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- UK Space Policy to encourage and support small Launch from the UK
- Sovereign launch seen to help deliver Industrial Strategy
- Space Bill primary legislation passed second reading and Queen's assent.
- Secondary legislation expected to delivery regulatory framework in 2020
- Interest and positive engagement with Scottish Government

# Market: Why Sutherland?

- Natural advantages (good access to orbits)
- Developed engagement with Launchers
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- Skilled supply chain (heritage from Dounreay)
- Development of small satellite constellations
- Supportive environment





# What is a Spaceport?

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## Plans do not include:

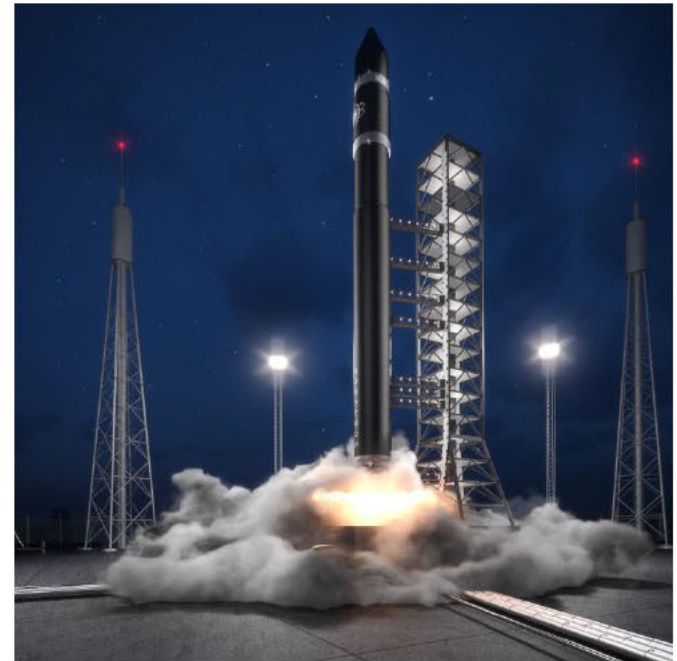
- **Horizontal launch capability**
- **Manned space travel**

## Vertical launch site will include capability for:

- **Transport and preparation of launch vehicles**
- **Cargo: payload for spacecraft**
- **Fuels and associated services**
- **Other generic infrastructure for use as multi-use site.**

# Economic Impact

- By 2023, 40 local jobs with a further 400 jobs in the region
- Initial launches will use international staff
- Local staffing requirements will develop over time.
- Orbex opened their factory in Moray in Feb '19
- Timeline has an excellent fit with decommissioning of Dounreay.



# Next Steps

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- Assembly of Capex costs [REDACTED]
- Agreement of funders [REDACTED]
- Procurement of Launch Site Operator – [REDACTED]
- Environmental studies – [REDACTED]
- Community engagement – August 2018 onwards
- Planning application submitted – [REDACTED]
- Launch from [REDACTED]



# Summary to Project Overview

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- **Employment and talent attraction for North Sutherland**
- **Opportunity to sustain the reputation of the North Highlands as a centre for science and technology**
- **Excellent fit to provide new jobs when Dounreay will reduce**
- **Still risks to project completing**
- **Long term prize but limited window of opportunity**
- **Support the diversification of local economies into other sectors – reducing the reliance of communities on nuclear sites for employment**

# ACP - Opportunities

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- Airspace is not required on a permanent basis
- [REDACTED]
- Supports FUA
- Scalability of airspace required
- Permanent core airspace, with differing volumes to protect different trajectories
- Shorter term activation may be possible
  - Multiple 'scrub' days may need to be planned for each launch.
- Post-launch de-activation
- Airspace required is in a sparsely populated area
- Low levels of GA activity

# ACP - Issues

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- Defining the precise trajectory to be protected
- Other national FIRs may be affected
- Commercial sensitivity of operations
- [REDACTED]
- Deconfliction with MOD Range activity will be required.
- Environmental requirements – policy for noise calculation?
- First launch date proposed [REDACTED]
- May be subject to call-in by Secretary of State (SofS)
  - Project is of strategic UK importance.
  - However, SofS may not decide on the proposal if it is directly related to a planning decision which has already been determined by the SofS.



# Area Concerned



# Airspace Requirements

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- All launches will only have northern trajectories.
- All have well defined azimuth range (maximum and minimum)
- [REDACTED]
- No trajectories fly over residential areas
- Launches will be managed by Range Control
  - Interface between Range Control and CAA/NATS to be developed



# Indication of Level/Scaling of ACP

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- Uncertainty surrounding the scale of this ACP. The business model suggests that a permanent change to the UK AIP may not be applicable.
  - Trajectories are likely to be different for each launch.
  - Airspace will be closed for 'hours', not days to cover proposed launch times.
  - May be a small area common to each launch which could be activated temporarily to support launches.
- CAP 1616 Stage 1: Completed
  - Statement of Need
- **Could this be considered as an Unusual Aerial Activity?**

# Exemplar Scale of Airspace Affected

## Mahia Peninsula NZ

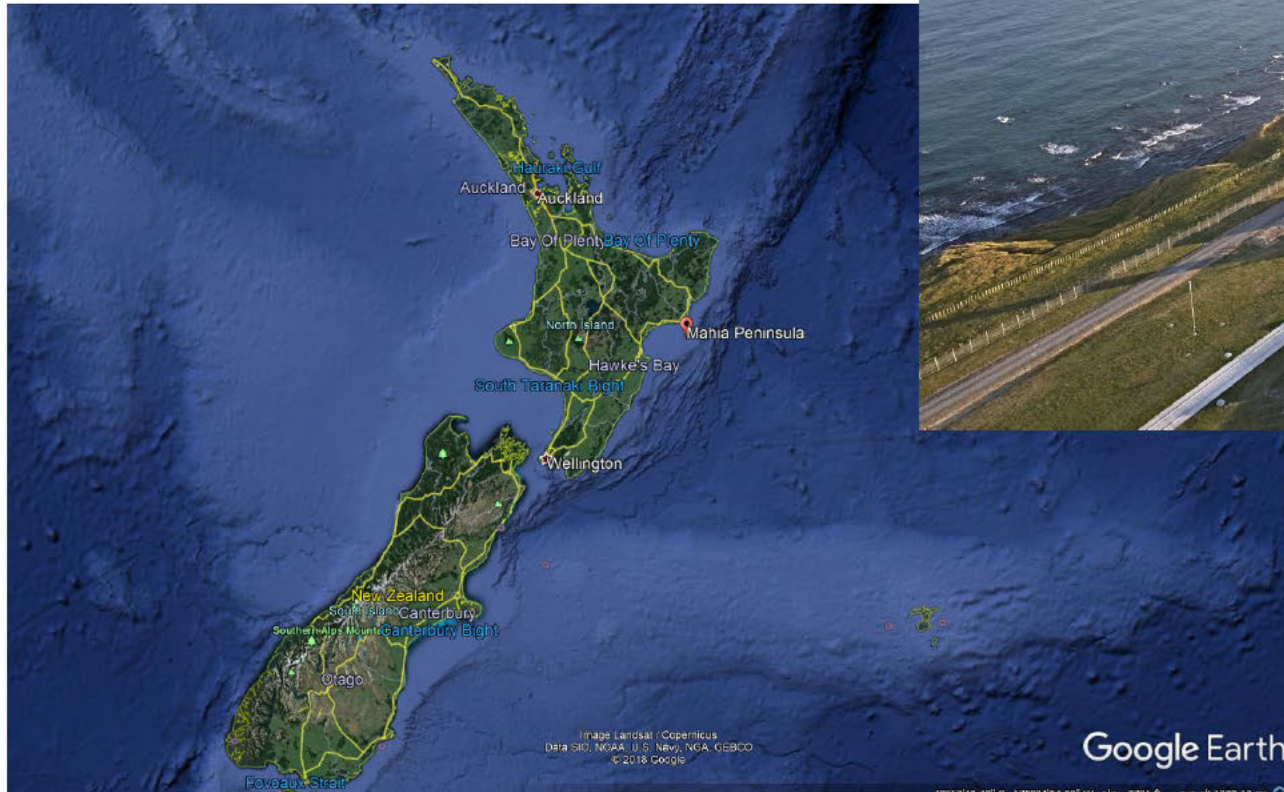
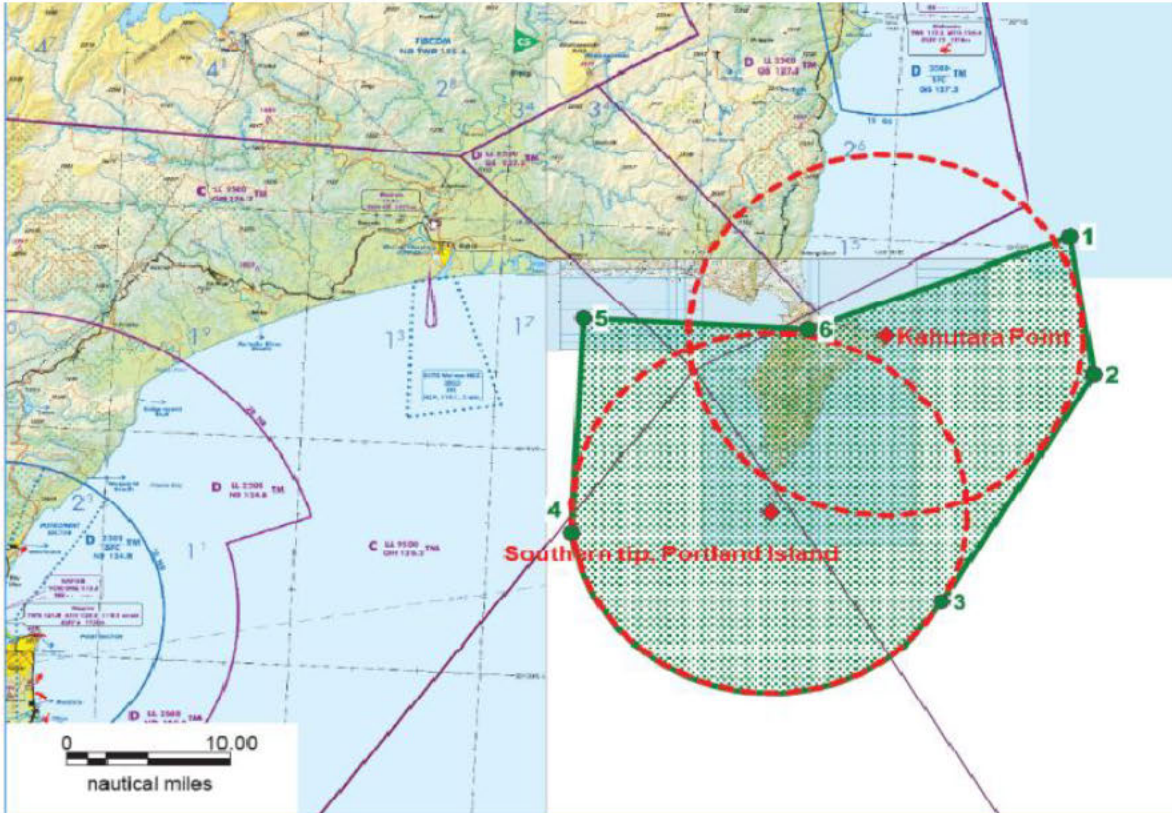


Image above credited to  
Rocket Lab USA

# Exemplar Scale of Airspace Affected



Base points NZR401 Mahia NZR401 Mahia  
 12 NM radius Region Point  
 Point  
 Region

Figure 1 – proposed Mahia restricted area



# Exemplar Scale of Airspace Affected



## SAFETY ZONES DURING A ROCKET LAB LAUNCH

### WHERE CAN I VIEW A LAUNCH FROM?

As Rocket Lab's top priority during the test launch is public safety, there are safety zones in place during a launch and no access will be permitted to the Onemi Station. As a result, Launch Complex 1 will not be visible during a launch from any publicly-accessible point on the Māhia Peninsula during the test window of December 8th - 17th.

Waioa District Council is evaluating the location of possible viewing areas for the commercial phase but these will not be in place for the test phase. Please check our website [www.rocketlab.co.nz/mahia](http://www.rocketlab.co.nz/mahia) for updates on future launches.

### WILL THE LAUNCH BE LIVE STREAMED?

Rocket Lab plans to offer a public live stream of a launch attempt at [www.rocketlab.co.nz/livestream](http://www.rocketlab.co.nz/livestream). Due to the likelihood of postponements, a live stream will only be made available approximately 12 minutes prior to a launch attempt. The best way to receive notifications on launch activities, including scrubs and the activation of a live stream, is to follow Rocket Lab's Twitter updates @RocketLab

### WHAT ARE THE SAFETY ZONE RESTRICTIONS?

#### ROAD ACCESS

The safety zone on land is contained within the boundaries of privately-owned Onemi Station (Figure 1), including Portland Island (Waikawa). For safety reasons, only a strictly controlled predefined group of authorised mission personnel are permitted within the safety zone during launch activities.

Temporary road closures will be in place for traffic management and to ensure the safety of vehicles on the Māhia East Coast Road, and the unformed Tawapata Road, on launch attempt days.

All residents will be able to access their properties, but the general public will be turned around at the closure point marked on Figure 1. The narrow, unsealed and winding roads are unsuited to high-levels of traffic and authorities anticipate an increase in vehicles on the Peninsula. Road closures and traffic management will take effect six hours before scheduled lift-off. Road closures could be in place between 7:00am - 7:00 pm from Friday 8 December - Sunday 17 December.

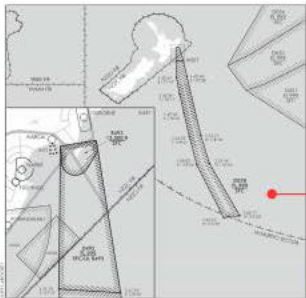


Figure 1

### WHEN WILL THE LAUNCH TAKE PLACE?

Rocket Lab will open a 10 day launch window from 8 - 17 December. Launch attempts will take place within this during a daily four hour window beginning at 2:30pm.

The launch process is complex. It's likely the launch could be postponed, or "scrubbed", multiple times to allow for small, technical modifications. Weather can also cause scrubs - winds and heavy rain will likely result in a postponement. As a result, we can't pin point the day or time of launch. Rocket Lab will announce the decision to scrub a launch as soon as possible but this could be as late as 0.2 seconds before lift-off.



Figure 1

#### AIR ACCESS

In order to facilitate the safety of air navigation during a launch, temporary Restricted and Danger Areas are prescribed surrounding the launch area. The Civil Aviation Authority designates the appropriate special use airspace that is used for events such as the Rocket Lab launch. The exact date and time the special use airspace becomes active will be advised via a Notice to Airmen (NOTAM).

Restricted and Danger Areas could be in place between 12:30pm - 5:30pm from Friday 8 December - Sunday 17 December.

Pilots are advised of any airspace changes at the Airways Internet Flight Information Service. Further details can be found in the Aeronautical Information Publication Supplement.

The temporary restrictions also apply to drones. The launch tracking systems can interfere with drone systems and potentially cause significant damage to equipment. Therefore, we ask that all members of the public refrain from the use of drones.

Pilots are advised of any airspace changes at the Airways Internet Flight Information Service ([www.ifs.airways.co.nz/](http://www.ifs.airways.co.nz/)). Further details can be found in the Aeronautical Information Publication Supplement (<http://aip.net.nz/>).



### MARINE ACCESS

As Rocket Lab's top priority during launch is public safety, there are safety zones in place during a launch which include an area of water around the launch site. These zones are a precautionary measure to ensure the safety of the public in the event of a launch accident.

A Marine Safety Zone could be active between 12:30pm - 5:30pm from Friday 8 December - Sunday 17 December.

Please continue to check [www.rocketlab.co.nz/mahia](http://www.rocketlab.co.nz/mahia) to see if these zones are active, or feel free to contact our team by calling 0800 110 623.

Range Control can be contacted on days of operation on VHF Channel 7.

All marine safety zones are detailed in a Notice to Mariners (NZ 106(T)17), Coastal Navigational Warnings, and NAVAREA XIV warnings.

### MARINE SAFETY ZONE COORDINATES

39°11.42' S 177°55.46' E  
39°11.80' S 177°58.00' E  
39°19.00' S 178°05.00' E  
40°14.65' S 178°04.62' E  
40°14.93' S 177°59.56' E  
39°13.28' S 177°47.00' E  
39°13.28' S 177°51.06' E

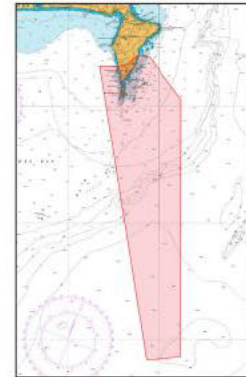


Figure 3



Figure 4

### HOW DO I CONTACT ROCKET LAB?

For real time updates regarding the launch, we recommend following the Rocket Lab Twitter page - @RocketLab

Any feedback about Rocket Lab's operations is welcome via our hotline number - 0800 110 623 - or at [rocketlab.co.nz/mahia](mailto:rocketlab.co.nz/mahia).

For the latest, and most specific, updates around road, air and marine access please visit [www.rocketlab.co.nz/mahia](http://www.rocketlab.co.nz/mahia) or contact our team by calling 0800 110 623.

### CONNECT WITH US

@RocketLab  
facebook.com/rocketlabusa

# Unusual Aerial Activity

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- US FAA treats launches as Unusual Aerial Activities.
  - Each planned launch has a period whereby ATC is restricted for a specific period of time (by a RAT)
  - Each launch will have a 'scrub' day booked to accommodate a delayed launch.
- As soon as activity is finished, range control contacts DoD and airspace is re-opened.
- Each launch trajectory may be different.
- Volume of airspace required is large – but will vary according to the weight of the load.
- May affect other national FIRs.

# Indication of Level/Scaling of ACP

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- Stage 4: Proposal Submission
- Evidence of ability to meet the prescribed AIRAC date will be included.
- Submit to [airspace@caa.co.uk](mailto:airspace@caa.co.uk)
- DECIDE Gateway

# Provisional Timescales

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- Stage 1: DEFINE Gateway: 30 August 2019
- Stage 2: DEVELOP AND ASSESS: Gateway: 25 October 2019
- Stage 3 Consult: Gateway: 31 January 2020
  - Consultation Preparation and Approval
- Aim to start Consultation by 10 Feb 2020; finish by mid May 2020
- Stage 4 Submission: Depends on results of consultation and design modifications required.
  - Aim to submit NLT end July 2020 if full 12 weeks
- Stage 5 Decision: ideally by end of 2020
- Target AIRAC cycle:
  - Desired: 02/2021 (deadline 27/11/20 – effective 25/02/21)
  - Latest: 05/2021 (deadline 19/02/21 – effective 20/05/21)

# Next Steps

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- CAA to notify if CAP 1616 is applicable or if launches to be handled as **Unusual Aerial Activity**.
- Identification of stakeholders – and development of current engagement programme – establishment of Focus Groups
- Options Development.
- Options Appraisal – confirmation required from CAA of environmental assessments.
- Preparation for Consultation.
- Consultation with Stakeholders: aviation, residents, marine.
- Assuming consultation will be accepted, parallel development of Stage 4 to enable submission to CAA NLT July 2020.



# Any Questions?

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