



# Demystifying SharePoint throttling



## User

All request linked to user



User request limits  
(rare)



## Application

Delegated or Application permissions



# Resource Units per app  
per minute (common)



# Resource Units per  
app per day (seldom)



## Farm



Spike protection (very  
rare)

?

1. Catch HTTP error 429 / 503
2. Respect Retry-After header wait time (in seconds)
3. Try again



# Resource units

- Quota depends on tenant size

License count	0 – 1k	1k – 5k	5k – 15k	15k – 50k	50k+
App 1 minute	1,200	2,400	3,600	4,800	6,000
App daily	1,200,000	2,400,000	3,600,000	4,800,000	6,000,000

- Favor Microsoft Graph over SharePoint REST/CSOM
- Predefined costs for Microsoft Graph calls

Resource units per request	Operations
1	<ul style="list-style-type: none"><li>• Single item query, such as get item</li><li>• Delta with a token</li></ul>
2	<ul style="list-style-type: none"><li>• Multi item query, such as list children, except delta with a token</li><li>• Create, update, delete and upload</li></ul>
5	<ul style="list-style-type: none"><li>• All permission resource operations, including \$expand=permissions</li></ul>

Assuming 2 resource units per request is a safe bet

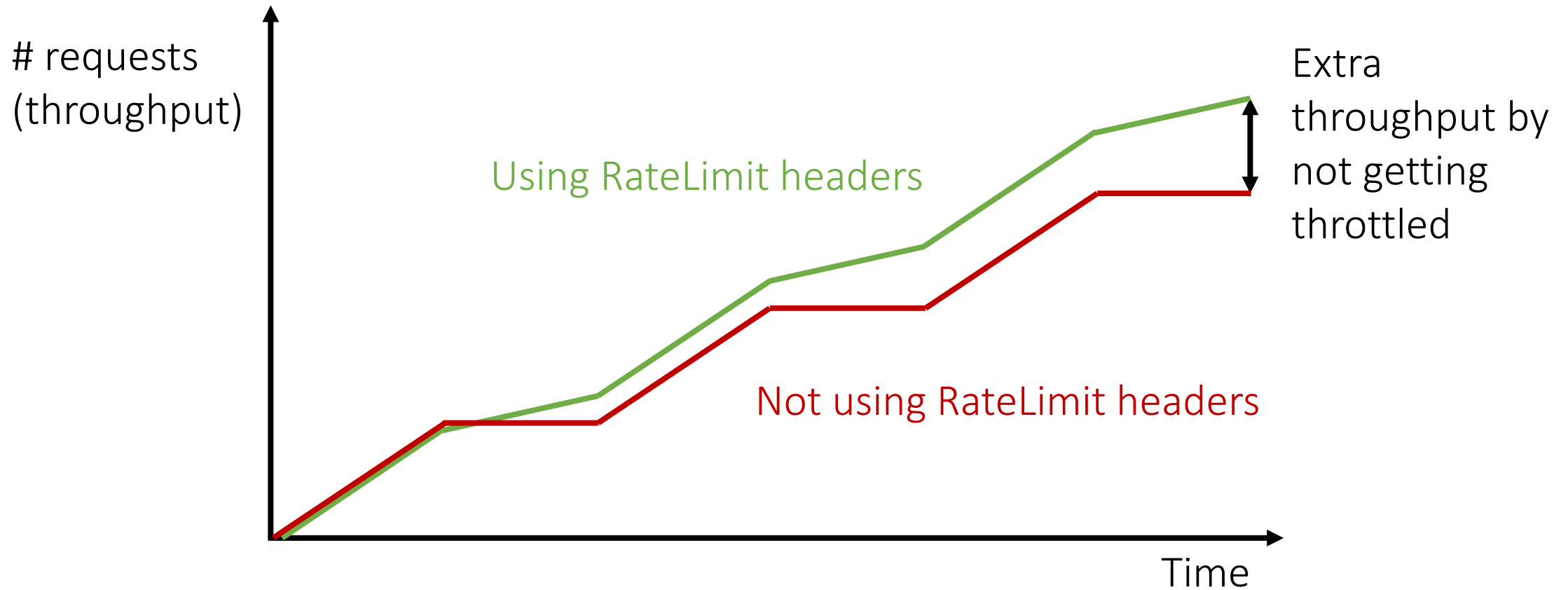
# RateLimit headers

- Based upon [IETF RateLimit headers](#) (in preview):
  - **RateLimit-Limit** contains the limit in the current time window.
  - **RateLimit-Remaining** indicates the remaining quota in the current window.
  - **RateLimit-Reset** indicates the number of seconds until the quota is refilled
- Only returned when  $\geq 80\%$  of “# resource units per app per minute” quota has been consumed

```
HTTP/1.1 200 Ok
RateLimit-Limit: 1200
RateLimit-Remaining: 120
RateLimit-Reset: 5
```

```
HTTP/1.1 429 Too Many Requests
Retry-After: 31
RateLimit-Limit: 1200
RateLimit-Remaining: 0
RateLimit-Reset: 31
```

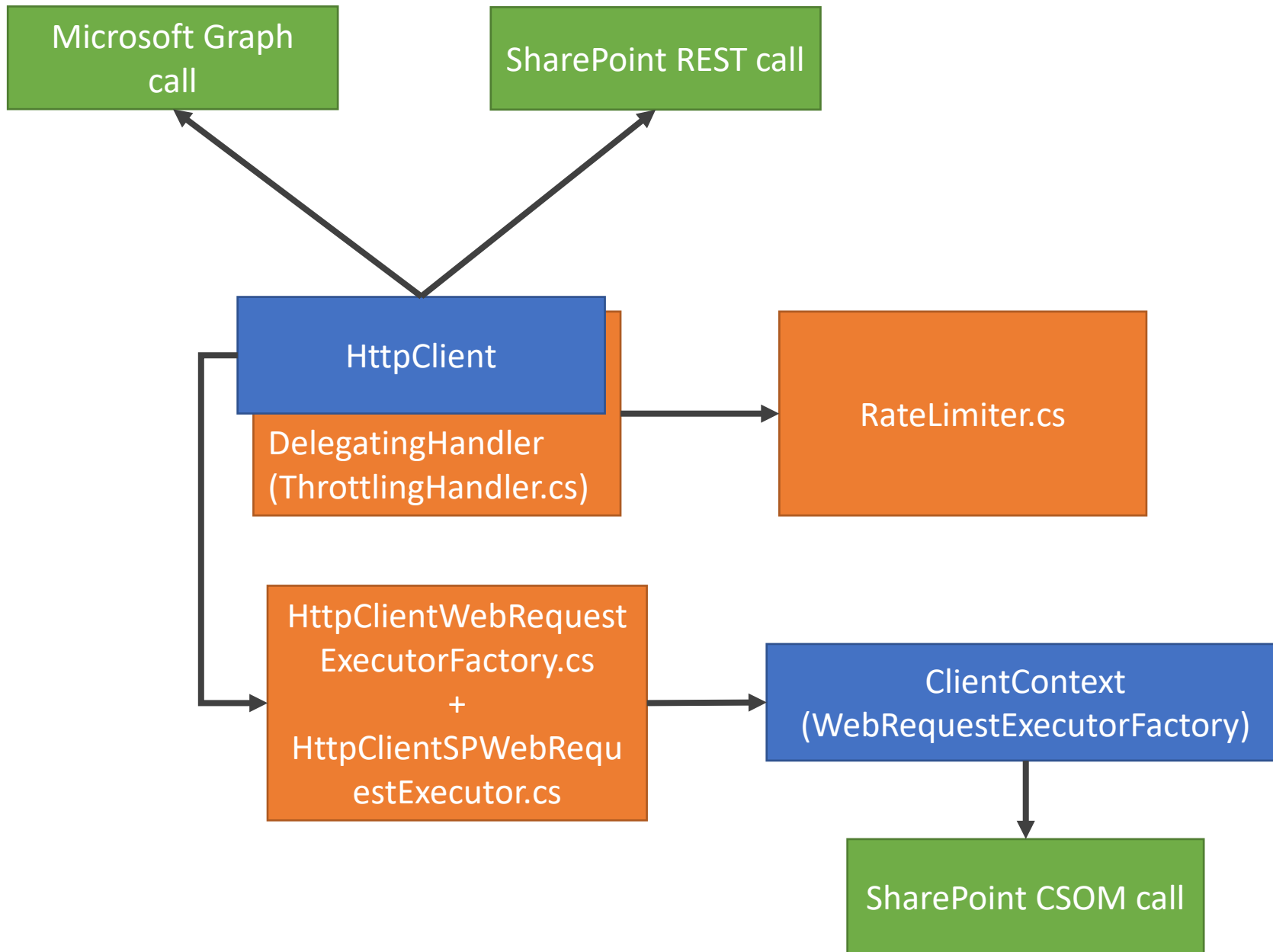
# Why use RateLimit headers



A person wearing a dark suit and a light-colored shirt is holding a white rectangular sign with both hands. The sign has the word "DEMO" in large, bold, black capital letters. Below it, there is a dark horizontal bar containing the text "RateLimit headers" in a light-colored font.

# DEMO

RateLimit headers



# Throttling Q&A

- Are there exceptions possible?
- Do I still need to specify a User-Agent string?
- Can my application use multiple Azure Applications?
- Should my app use a “service user” delegated model versus application permissions?
- My app needs to read all content and stay up to date on content changes, is that possible? (aka.ms/scanguidance)
- Can I do load testing?
- Resources:
  - <https://aka.ms/sharepoint/throttling>
  - <https://github.com/OneDrive/samples/blob/master/scenarios/throttling-ratelimit-handling/readme.md>