Possibilities

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Agenda

- Licensing Overview for C3650 / 3850
- What is Device Led Conversion
- Device Led Conversion Workflow
- What is Expected during Device Led Conversion
- Common issues
- Appendix

Licensing Overview
for C3650 / 3850

Licensing Overview for C3650 / 3850

- Original licensing model was Right-To-Use for all licenses

- First Models Launched November 2012 with 3 License Levels
  - LAN Base: Enterprise access Layer 2 switching features
  - IP Base: Enterprise access Layer 3 switching features
  - IP Services: Advanced enterprise Layer 3 switching (IPv4 and IPv6) features

- Platforms also introduced add-on licenses for DNA integration
  - DNA Essentials: Day 0 Automation, Management, Monitoring
  - DNA Advantage: Essentials + Policy-based Automation, Assurance and Analytics

- Licensing model migrated to Smart Licensing in 16.9 and later

Licensing Overview for C3650 / 3850

- One caveat is previous licenses were Right-To-Use and they did not automatically show in the Cisco Smart Software Manager (CSSM) portal like newer platforms

- This caveat depends on when the switch was purchased as newer switches can have their licenses deposited in the desired Account

- This is expected because Smart Accounts became standard <u>AFTER</u> the C3650 and C3850 platforms launched in 2012

- To fix this behavior the Device Led Conversion (DLC) process was introduced for C3650 and C3850 platforms
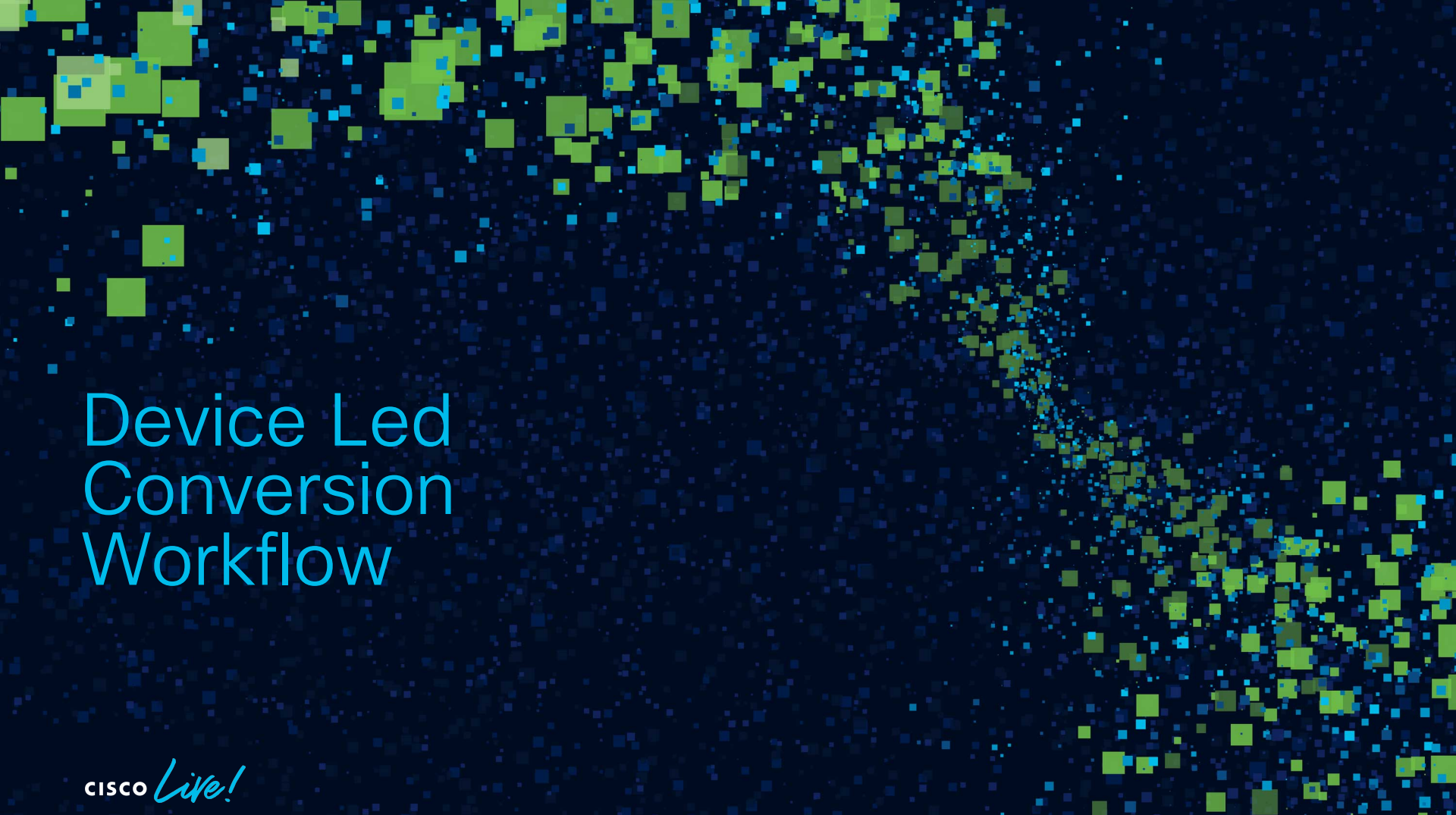
What is Device Led Conversion?

Device Led Conversion (DLC)

- Device Led Conversion is a process that allows devices that are registered to automatically convert the licenses they are utilizing to Smart Licenses on their corresponding Smart Account

- This allows legacy platforms to be able to easily utilize the benefits of smart licensing

- For Catalyst platforms this was specific introduced for the Catalyst 3650 and 3850

- This can be performed on standalone switches and switch stacks

- No additional configuration – DLC utilizes the same connection as initial registration
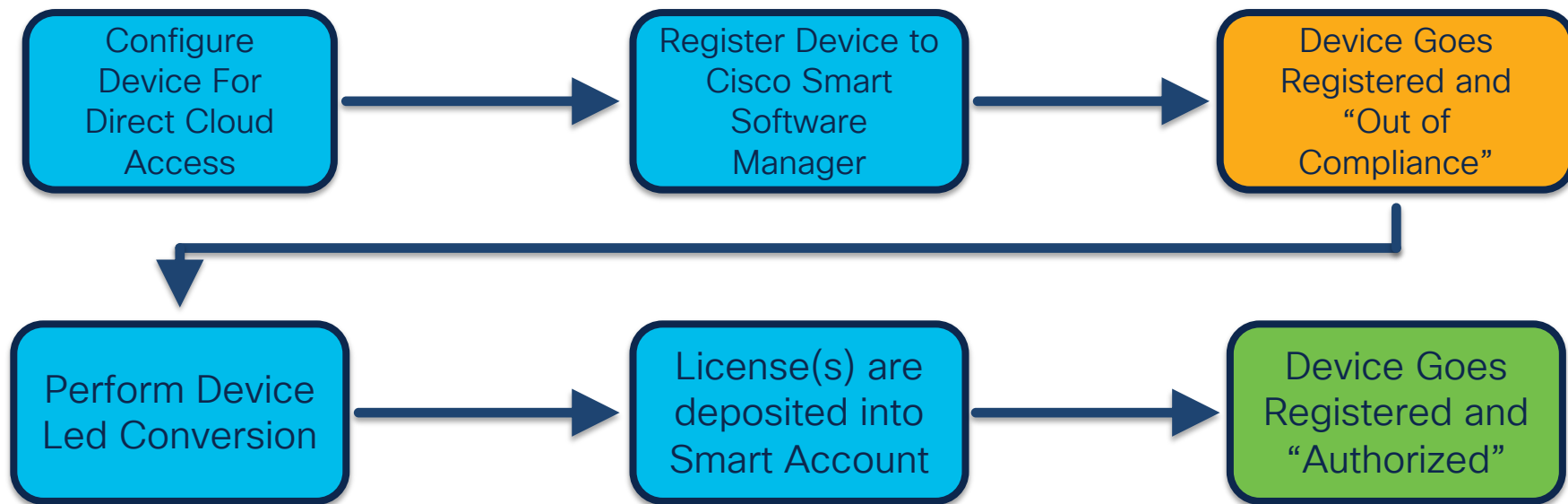
Device Led Conversion Workflow

Traditional Smart Licensing Workflow
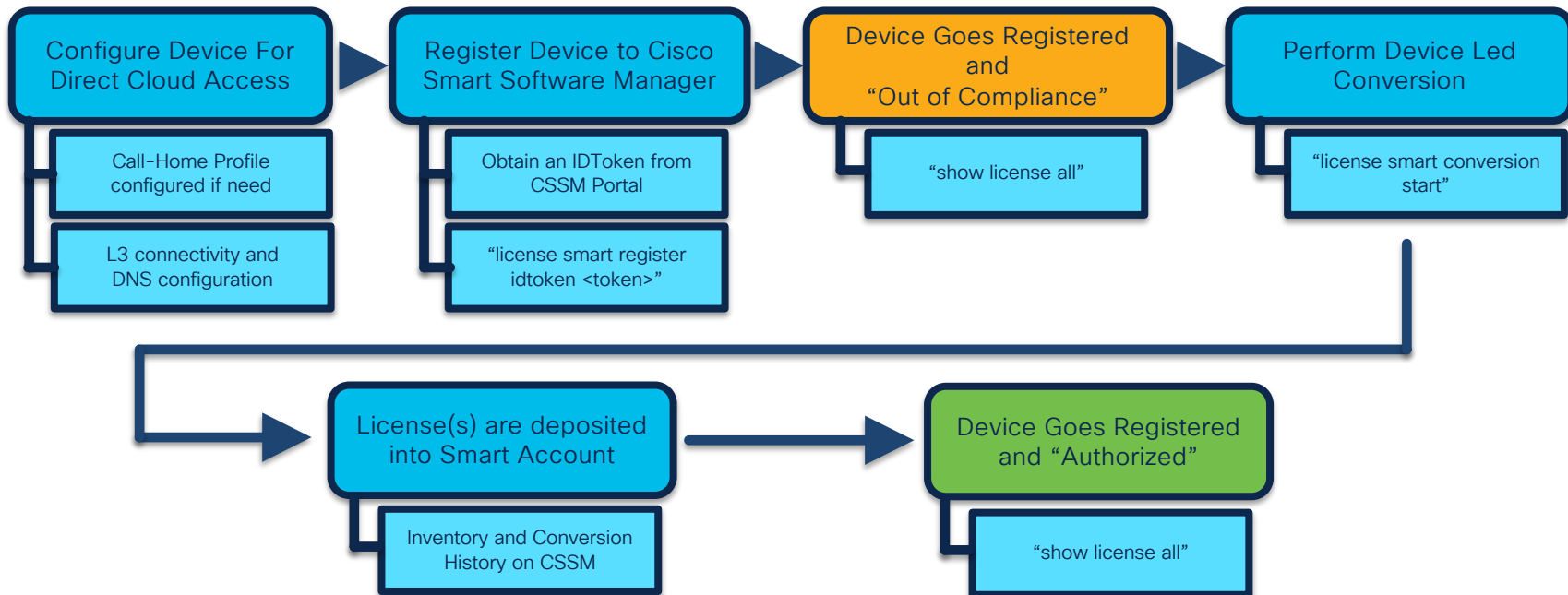
- Overview:

```
┌─────────────────┐          ┌─────────────────┐          ┌─────────────────┐
│  Configure      │          │ Register Device │          │  Device Goes    │
│  Device For     │  ──────► │ to Cisco Smart  │  ──────► │  Registered and │
│  Direct Cloud   │          │ Software        │          │  "Authorized"   │
│  Access         │          │ Manager         │          │                 │
└─────────────────┘          └─────────────────┘          └─────────────────┘
```

C3650/C3850 Smart Licensing Workflow

- Overview:

| Configure Device For Direct Cloud Access | → | Register Device to Cisco Smart Software Manager | → | Device Goes Registered and "Out of Compliance" |

| Perform Device Led Conversion | → | License(s) are deposited into Smart Account | → | Device Goes Registered and "Authorized" |

C3650/C3850 Smart Licensing Workflow

- Detailed:

What is Expected
During DLC

What is Expected During DLC

- Device Led Conversion can only be performed once

- Device Led Conversion is a simple process after prerequisites

- Device Led Conversion itself is one command "license smart conversion start"

- Device Led Conversion can be broken in a few steps:
  1. First Register the device to desired Smart Account
  2. Verify license status
  3. Begin Device Led Conversion process
  4. Verify DLC started / Wait for Conversion to Finish
  5. Check Cisco Smart Software Manager Portal / Re-verify license status

Note – Ensure correct license is running <u>before</u> starting DLC process!

Step 1 – Register the Device to CSSM

- Once registration is completed, you will notice the device shows as
  "UNAUTHORIZED" and "OUT OF COMPLIANCE":

```
switch#show license all
<omitted>
Registration:
 Status: REGISTERED
 Smart Account: Example Account
 Virtual Account: Enterprise Access
 Export-Controlled Functionality: ALLOWED
 Initial Registration: SUCCEEDED on May 27 18:42:53 2020 UTC
 Last Renewal Attempt: None
 Next Renewal Attempt: Nov 23 18:42:53 2020 UTC
 Registration Expires: May 27 18:37:22 2021 UTC

License Authorization:
 Status: OUT OF COMPLIANCE on May 27 18:42:57 2020 UTC
 Last Communication Attempt: SUCCEEDED on May 27 18:42:57 2020 UTC
 Next Communication Attempt: May 28 06:42:57 2020 UTC
 Communication Deadline: Aug 25 18:37:29 2020 UTC
```

Step 2 – Verify Status of Licenses

- Verify status – Before starting DLC:

```
switch#show license status
<omitted>

Registration:
  Status: REGISTERED
<omitted>

License Authorization:
  Status: OUT OF COMPLIANCE on May 27 18:42:57 2020 UTC
<omitted>

License Conversion:
  Automatic Conversion Enabled: False
  Status: Not started
```

Note – The output under "License Conversion" section varies depending on code version / stack configurations

Step 3 – Perform Device Led Conversion

- Perform "license smart conversion start":

    switch#license smart conversion start

- The following syslog should be generated:

    *May 27 18:45:51.181: %SMART_LIC-6-CONVERT_START: Smart License Conversion has started

Step 4 – Verify / Wait for Conversion to Finish

- Device Led Conversion can take approximately 1 to 24 hours to complete depending on backend server load during conversion

- Verify status – Status during Device Led Conversion:

License Conversion:
  Automatic Conversion Enabled: False
  Status: Started on May 27 18:45:51 2020 UTC

License Conversion:
  Automatic Conversion Enabled: False
  Status: Waiting for response on May 27 18:45:51 2020 UTC
  Next response check: May 27 19:45:54 2020 UTC

License Conversion:
  Automatic Conversion Enabled: False
  Active: PID:WS-C3850-24P,SN:FOC1842U0FC
  Status: Polling on Jul 09 10:16:01 2018 UTC
  Next response check: Jul 09 11:16:05 2018 UTC
  Standby: PID:WS-C3850-24P,SN:FOC1842U0CZ
  Status: Not started
  Member: PID:WS-C3850-24P,SN:FOC1842X0FD
  Status: Not started

Note – The output under "License Conversion" section varies depending on code version / stack configurations

Step 5 – Check CSSM / Re-verify License Status

- Checking on the portal side:

Step 5 – Check CSSM / Re-verify License Status

• Checking on the portal side (continued):

Cisco Software Central > **Smart Software Licensing**

Smart Software Licensing

Feedback Support Help

Alerts | **Inventory** | Convert to Smart Licensing | Reports | Preferences | On-Prem Accounts | Activity

Virtual Account: Enterprise Access

80 Major **116** Minor **7** Informational **Hide Alerts**

| General | **Licenses** | Product Instances | Event Log |

By Name | By Tag

Available Actions ▾ | Manage License Tags | License Reservation... | ⧉

C3850 ✕ 🔍

	License	Billing	Purchased	In Use	Balance	Alerts	Actions
☐	C3850_24_Ipserv	Prepaid	1	1	0		Actions ▾

Step 5 – Re-verify License Status

- Verify status – Status after completing DLC:

  switch#show license status
  <omitted>

  License Conversion:
    Automatic Conversion Enabled: False
    Active: PID:WS-C3850-24P,SN:FOC1842U0FC
    Status: <mark>Successful</mark> on Jul 09 11:16:06 2018 UTC
    Standby: PID:WS-C3850-24P,SN:FOC1842U0CZ
    Status: <mark>Successful</mark> on Jul 09 11:16:06 2018 UTC
    Member: PID:WS-C3850-24P,SN:FOC1842X0FD
    Status: <mark>Successful</mark> on Jul 09 11:16:06 2018 UTC

Note – The output under "License Conversion" section varies depending on code version / stack configurations

Common Issues

Common Issues

- Majority of the time Smart Licensing issues are during initial registration

- Some common issues include:
  - Device registration is failing
  - Cannot enter ID token on device
  - Wrong license was converted via DLC
  - License deposited in wrong Virtual Account

Device Registration is Failing

Switch License Authorization "Failure reason: Fail to send out Call Home HTTP message."

Behavior:

Device will not register and the DLC process can not be done

Logs are seen:

*May 27 19:45:49.721: %SMART_LIC-3-COMM_FAILED: Communications failure with the Cisco Smart Software Manager or satellite : Fail to send out Call Home HTTP message.

*May 27 19:45:49.722: %SMART_LIC-3-AUTH_RENEW_FAILED: Authorization renewal with the Cisco Smart Software Manager or satellite : Communication message send error for udi PID:WS-C3850-24P,SN:xxxxxxxxxx

Snip of "show license all":

License Authorization:
Status: OUT OF COMPLIANCE on Jul 26 09:24:09 2018 UTC
Last Communication Attempt: FAILED on Aug 02 14:26:23 2018 UTC
Failure reason: Fail to send out Call Home HTTP message.
Next Communication Attempt: Aug 02 14:26:53 2018 UTC
Communication Deadline: Oct 25 09:21:38 2018 UTC

Device Registration is Failing

Switch License Authorization "Failure reason: Fail to send out Call Home HTTP message."

What to look into:

- Verify HTTP configuration on the switch is correct.
  - "show run | s http"
- Call home is the correct address.
  - "show call-home profile all"
- Verify you can ping tools.cisco.com
- Check HTTP client source interface is correct
- Check the call home profile is set activate correctly
- Check ip route is pointing the right way
- Ensure TCP443 is not being blocked any where in the path

Cannot Enter ID Token on Device

"Operation not supported because the agent is running in Permanent License Reservation mode"

Behavior:

Running "license smart register idtoken <x>" on the device returns a message stating it is in permanent license reservation mode causing the token not to loaded

Switch fails to register to Cisco Smart Software Manager

Solution:

Disable license reservation mode:

switch#configure terminal

switch(config)#no license smart reservation

Attempt registration again:

switch#license smart register idtoken <x>

Wrong License was Converted via DLC

Switch was running IPBase when it was converted instead of desired IPServices level

Behavior:

    Switch goes back to **"Out-Of-Compliance"** once the license is changed to IPServices

Solution:

    Reach out to Global Licensing Operations for the desired license to be manually deposited in the corresponding Smart Account

- Contact by Phone – 1(800)553-2447 / 1(408)526-7209
- Open a Case Online – https://www.cisco.com/c/en/us/support/index.html

License Deposited in Wrong Virtual Account

Switch was registered with a token generated from the incorrect Virtual Account.

Behavior:

Switch shows **"Out-Of-Compliance"** even though the license was converted

Typically seen in the following scenarios:

- When switch is deregistered and registered at a later date
- When staging and/or replacing a failing switch

License Deposited in Wrong Virtual Account

Solution:

Navigate to CSSM > Inventory > Licenses > Select License > Actions > Transfer...

Appendix

Appendix A – Additional References

- Cisco Smart Licensing "home page" –
https://www.cisco.com/c/en/us/products/software/smart-accounts/software-licensing.html

- Smart Licensing Enabled Product Families –
https://www.cisco.com/c/en/us/products/software/smart-accounts/smart-licensing-feature-roadmap-comparison-table.html

- Catalyst 3850 Smart Licensing Configuration Guide –
https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst3850/software/release/16-9/configuration_guide/sys_mgmt/b_169_sys_mgmt_3850_cg/configuring_smart_licensing.html

- Cisco Smart Licensing – Troubleshooting Steps and Considerations on Catalyst platforms –
https://www.cisco.com/c/en/us/support/docs/switches/catalyst-9500-series-switches/214484-cisco-smart-licensing-troubleshooting.html

- Cisco Smart Software Licensing: Overview and Deployment Options White Paper –
https://www.cisco.com/c/en/us/products/collateral/software/smart-accounts/white-paper-c11-741659.html

Thank you

Possibilities

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