

Capacity Extensions

Logging Extensions

draft-ietf-cdni-capacity-insights-extensions-04
draft-rosenblum-cdni-logging-extensions-01

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Capacity Capability Advertisement Extensions

- Framework for information exchange facilitating traffic delegation decisions.
- Provide a feedback mechanism which informs the delegator of current traffic levels in near real-time (`FCI.Telemetry`).
- Define limits in unambiguous, mutually understood terms (`FCI.CapacityLimits`).

Status

- WGLC opened March 16th, closes March 30th.
- Likely one revision before WGLC closes to address new mailing list comments.

Logging Extensions

RFC 7937 does not provide all of the logging functionality required by CDN operators in a production environment. This draft builds on RFC 7937 to add:

- Field definitions
- Record formats
- Container formats
- Transports (log shipping)
- Data transformations
- uCDN configurable header inclusion

Field Definitions

Extends the RFC 7937 set of fields and organizes them into field sets to cover common use cases like billing, operational monitoring, and troubleshooting.

New since previous draft:

- s-upstream-status
- s-upstream-header-size-bytes
- s-upstream-total-bytes

Record Formats

RFC 7937 specifies a derivative of ELF for the file format with individual record fields separated by TAB.

The extensions add support for other formats:

- JSON
- CSV
- Whitespace (SPACE (U+0020) or TAB (U+0009))
- Protobuf

Container Formats

In addition to the RFC 7937 ELF-based file format, support is added for:

- JSON
- Newline delimited (both `\n` and `\n\r`)
- Protobuf
- Archives (tar)

The container format is now independent of the record format.

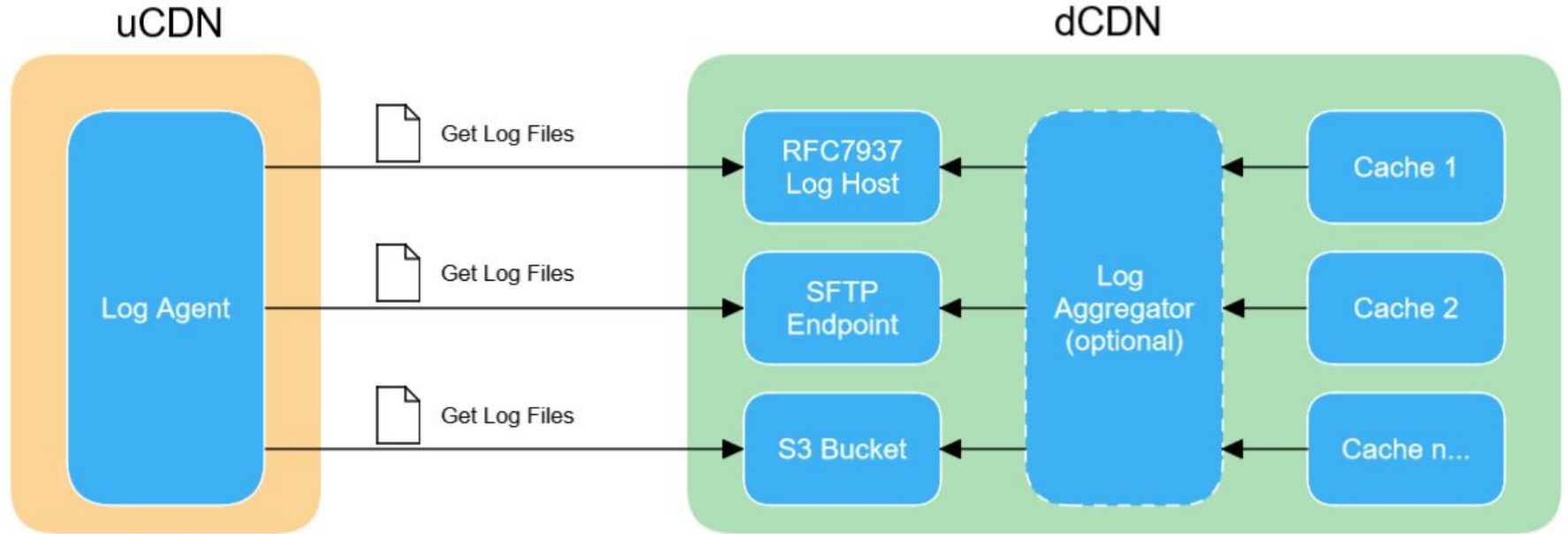
Container Metadata

JSON has support for inline metadata inclusion. Other formats may provide a metadata sidecar file.

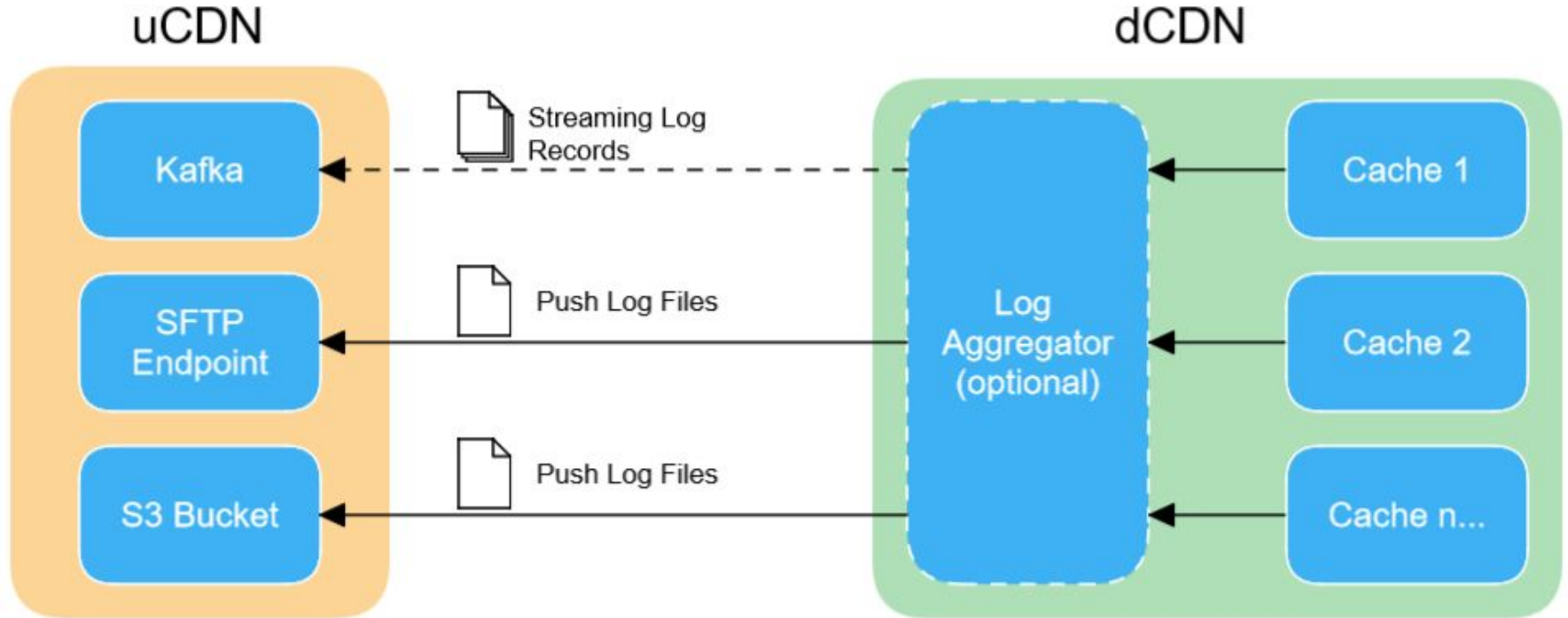
Metadata includes the record type, the time range covered by the records in the file, and transform operations applied against the record fields.

```
{
  "shortname": "exampleCDN",
  "timestamp-start-iso8601": "2023-01-15T14:00:00Z",
  "timestamp-end-iso8601": "2023-01-15T14:59:59Z",
  "account-id": "foobarMedia",
  "metadata": {
    "record-type": "cdni_standard_json_v1",
    "transforms": [
      {
        "record-fields": [
          "c-ip"
        ],
        "operations": [
          {
            "type": "MI.LoggingTransformMaskIp",
            "value": {
              "mask-lsb-v4": 4,
              "mask-lsb-v6": 16
            }
          }
        ]
      }
    ]
  }
},
  "records": [
    "...
  ]
}
```

Transports - Pull Mode



Transports - Push Mode



```
{
  "generic-metadata-type": "MI.LoggingMetadata",
  "generic-metadata-value": {
    "transports": [
      {
        "type": "MI.LoggingTransportS3API",
        "record-type": "standard_json_v1",
        "container-metadata": {
          "container-type": "json_v1",
          "name-template": "%Y-%m-%d-access.log",
          "interval": 86400
        },
        "account-id": "dCDN1",
        "endpoint": {
          "host": "s3.amazonaws.com",
          "access-key-id": "xxxxxxxx",
          "access-key-secret": {
            "secret-store-id": "store-1",
            "secret-store-path": "/logging/dCDN1/dcdnlogs/s3"
          },
          "bucket-name": "dcdnlogs"
        }
      }
    ]
  }
}
```

MI.LoggingMetadata Example

Transforms

Some logging fields may contain sensitive information (e.g. client IP address).

Transforms allow a general mechanism for truncating, obfuscating, and encrypting log record fields.

- IP masking
- Regex replace
- Truncate
- URL parameter removal
- URL path trim
- Field hashing, encrypting, and encoding

```
{
  "generic-metadata-type": "MI.LoggingMetadata",
  "generic-metadata-value": {
    "transforms": [
      {
        "record-fields": [
          "c-ip"
        ],
        "operations": [
          {
            "type": "MI.LoggingTransformEncrypt",
            "value": {
              "algorithm": "AEAD-XCHACHA20-POLY1305-IETF",
              "key": {
                "secret-store-id": "store-1",
                "secret-path": "/logging/encrypt/c-ip"
              }
            }
          }
        ]
      }
    ]
  }
}
```

Next Steps

- Call for WG adoption of draft-rosenblum-cdni-logging-extensions-01
- Draft is large and needs feedback - please review!
- Future work is needed to cover other functionality:
 - Custom field definitions, container formats, and record types
 - Additional fields for common use cases like geolocation and user agent metadata
 - Filtering
 - Sampling
 - uCDN configurable source aggregation
 - Statistical aggregation (derived metrics)