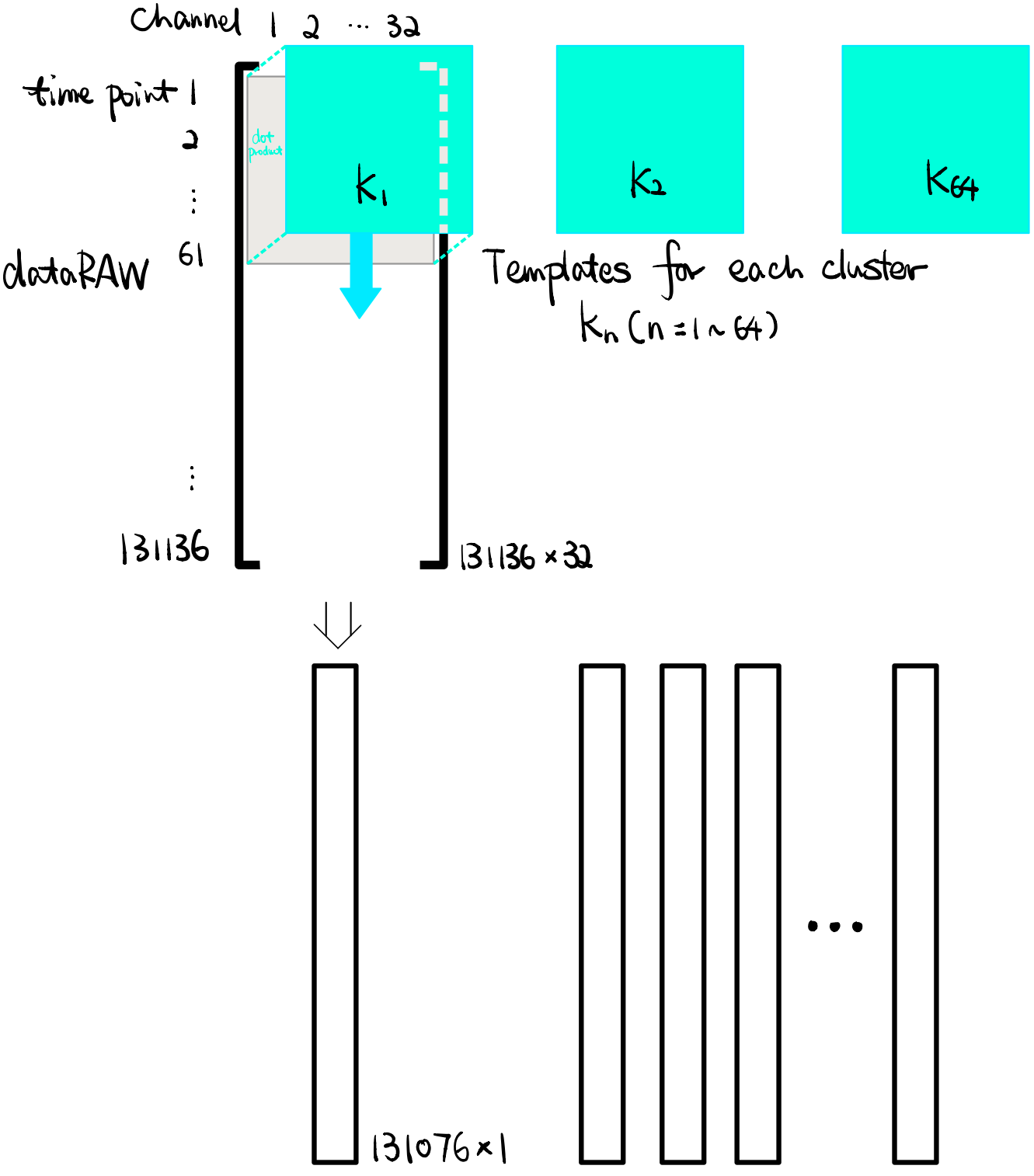
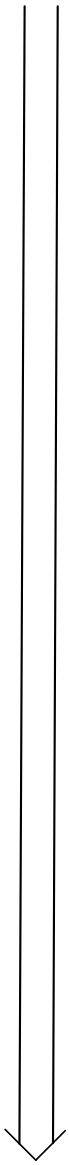

Channel 1 2 ··· 32
time point 1
2
⋮
61
⋮
131136
dataRAW
dot product
K1
K2
K64
Templates for each cluster
Kn (n = 1 ~ 64)
131136 × 32
131076 × 1
dot product between
the template of Cluster 1 2 3 4 ··· 64
and the raw data



Cluster

1 2 3 4 ··· 64

time point 1

2

⋮

61

⋮

131076

Proj =

131076 × 64

the decrease of Cost when using template k_n at time point t with the best fitting amplitude.

$$dC(n,t) = \frac{\left[\left(dataRAW * k_n\right)_{(t)} + \frac{\epsilon}{\lambda \mu_n}\right]^2}{1 + \frac{\epsilon}{\lambda \mu_n^2}} - \lambda \mu_n^2 = \frac{b^2}{a} - c$$

where $\lambda = lam$, $\epsilon = \lambda^2 \cdot \mu_n^2$, $\frac{\epsilon}{\lambda} = \lambda \cdot \mu_n^2$