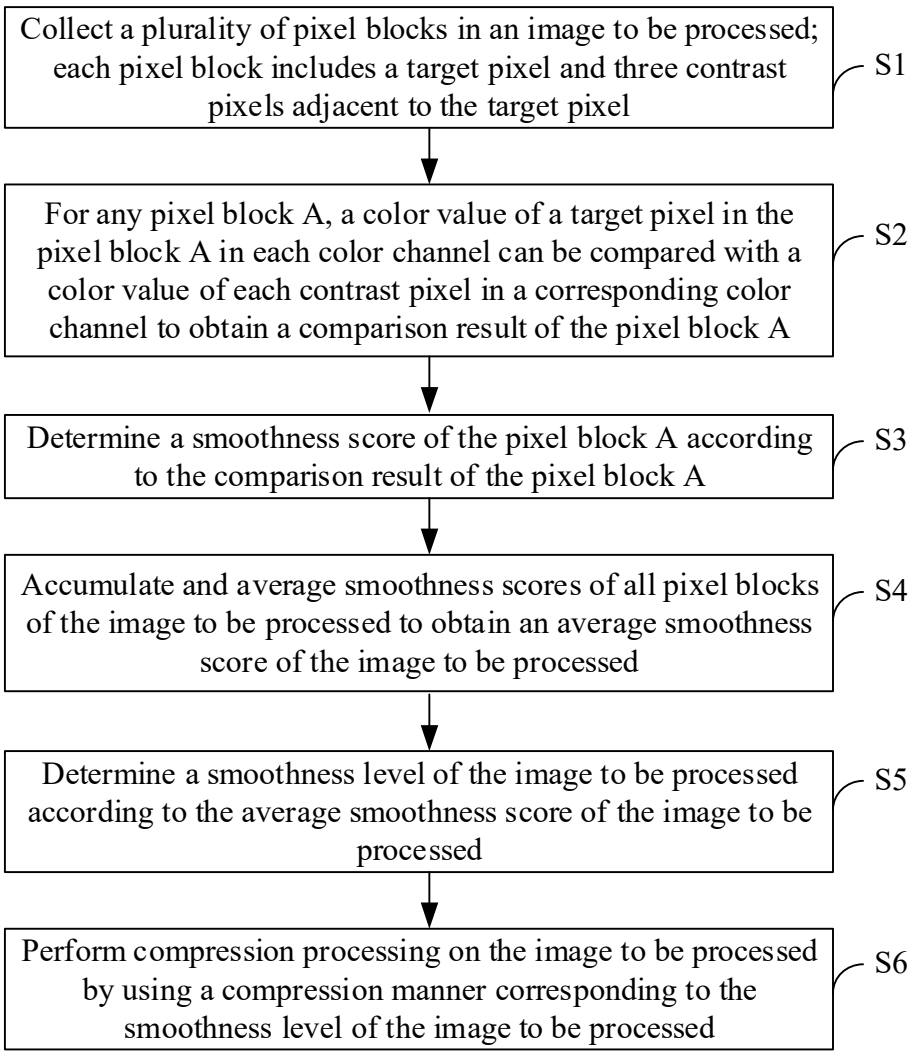

Collect a plurality of pixel blocks in an image to be processed; each pixel block includes a target pixel and three contrast pixels adjacent to the target pixel
S1
For any pixel block A, a color value of a target pixel in the pixel block A in each color channel can be compared with a color value of each contrast pixel in a corresponding color channel to obtain a comparison result of the pixel block A
S2
Determine a smoothness score of the pixel block A according to the comparison result of the pixel block A
S3
Accumulate and average smoothness scores of all pixel blocks of the image to be processed to obtain an average smoothness score of the image to be processed
S4
Determine a smoothness level of the image to be processed according to the average smoothness score of the image to be processed
S5
Perform compression processing on the image to be processed by using a compression manner corresponding to the smoothness level of the image to be processed
S6

FIG. 1

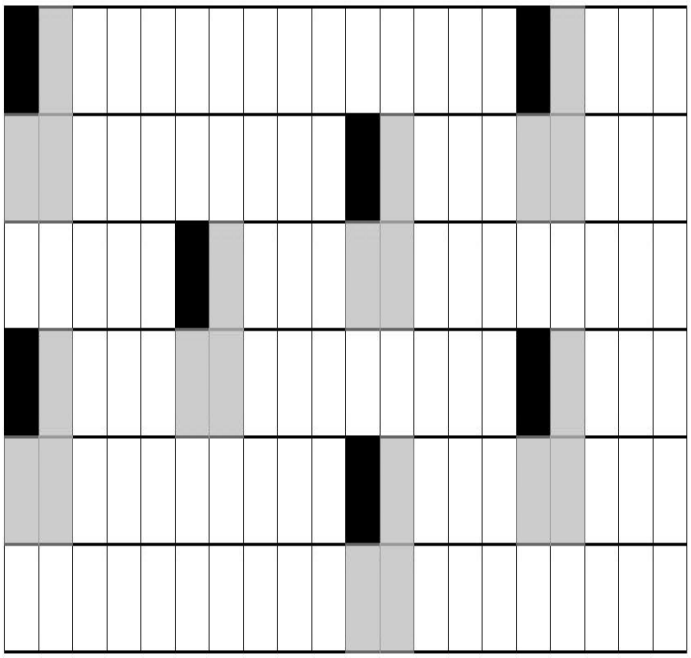


FIG. 2

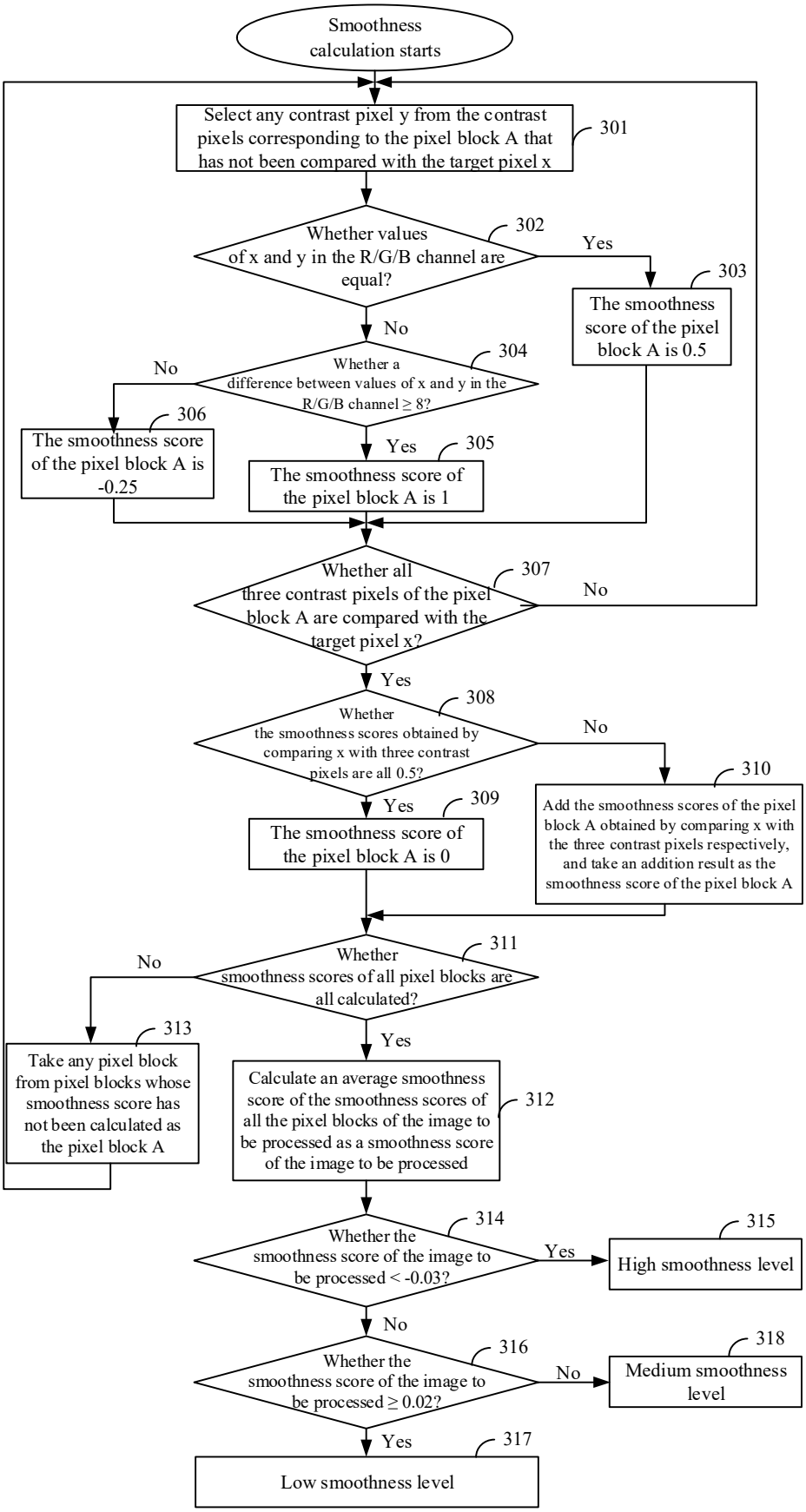

Smoothness calculation starts
Select any contrast pixel y from the contrast pixels corresponding to the pixel block A that has not been compared with the target pixel x
301
Whether values of x and y in the R/G/B channel are equal?
302
Yes
The smoothness score of the pixel block A is 0.5
303
No
Whether a difference between values of x and y in the R/G/B channel ≥ 8?
304
No
The smoothness score of the pixel block A is -0.25
306
Yes
The smoothness score of the pixel block A is 1
305
Whether all three contrast pixels of the pixel block A are compared with the target pixel x?
307
No
Yes
Whether the smoothness scores obtained by comparing x with three contrast pixels are all 0.5?
308
No
Add the smoothness scores of the pixel block A obtained by comparing x with the three contrast pixels respectively, and take an addition result as the smoothness score of the pixel block A
310
Yes
The smoothness score of the pixel block A is 0
309
Whether smoothness scores of all pixel blocks are all calculated?
311
No
Take any pixel block from pixel blocks whose smoothness score has not been calculated as the pixel block A
313
Yes
Calculate an average smoothness score of the smoothness scores of all the pixel blocks of the image to be processed as a smoothness score of the image to be processed
312
Whether the smoothness score of the image to be processed < -0.03?
314
Yes
High smoothness level
315
No
Whether the smoothness score of the image to be processed ≥ 0.02?
316
No
Medium smoothness level
318
Yes
Low smoothness level
317

FIG. 3

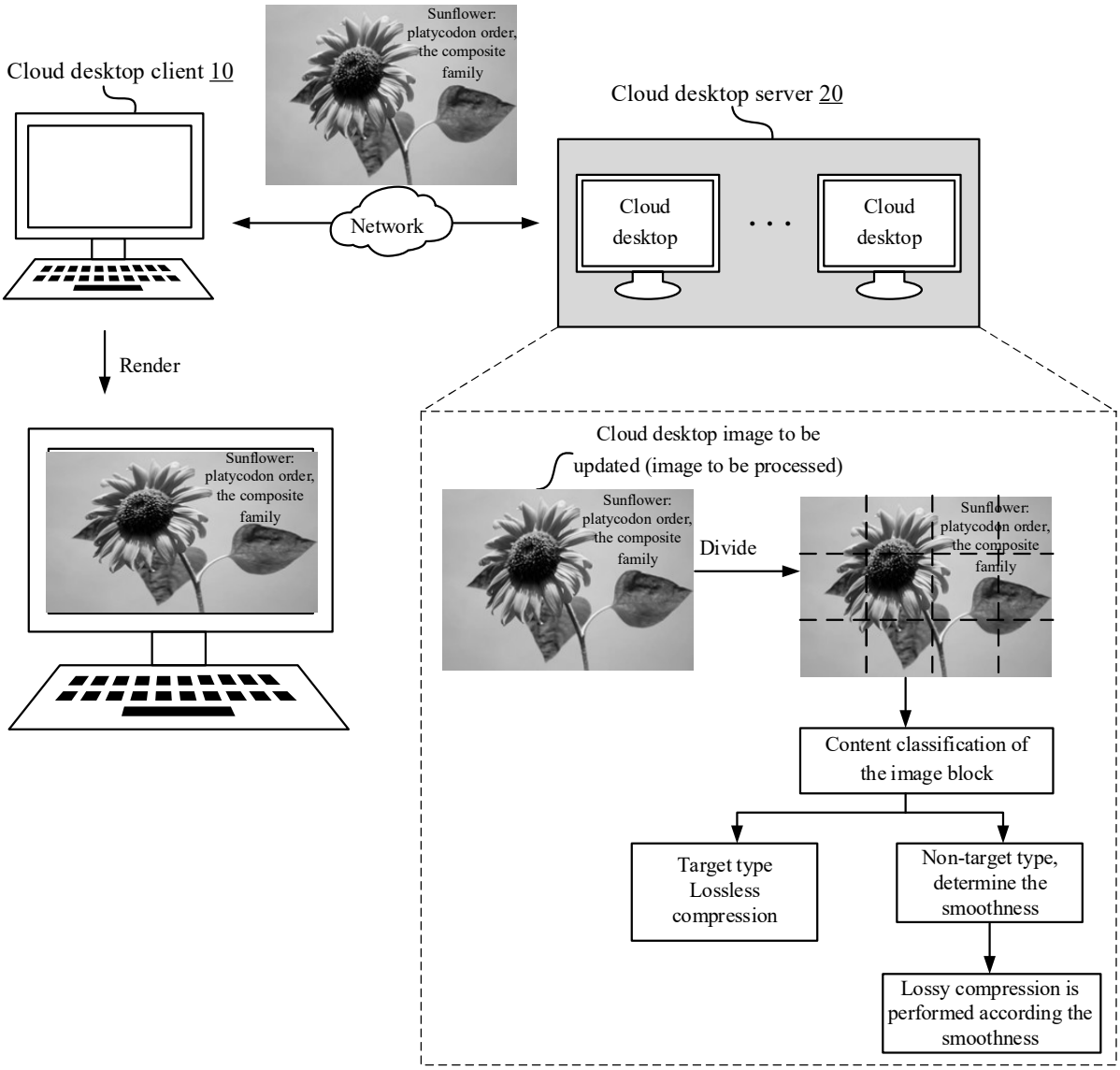

Cloud desktop client 10
Sunflower: platycodon order, the composite family
Network
Cloud desktop server 20
Cloud desktop
Cloud desktop
Render
Sunflower: platycodon order, the composite family
Cloud desktop image to be updated (image to be processed)
Sunflower: platycodon order, the composite family
Divide
Sunflower: platycodon order, the composite family
Content classification of the image block
Target type Lossless compression
Non-target type, determine the smoothness
Lossy compression is performed according the smoothness

FIG. 4

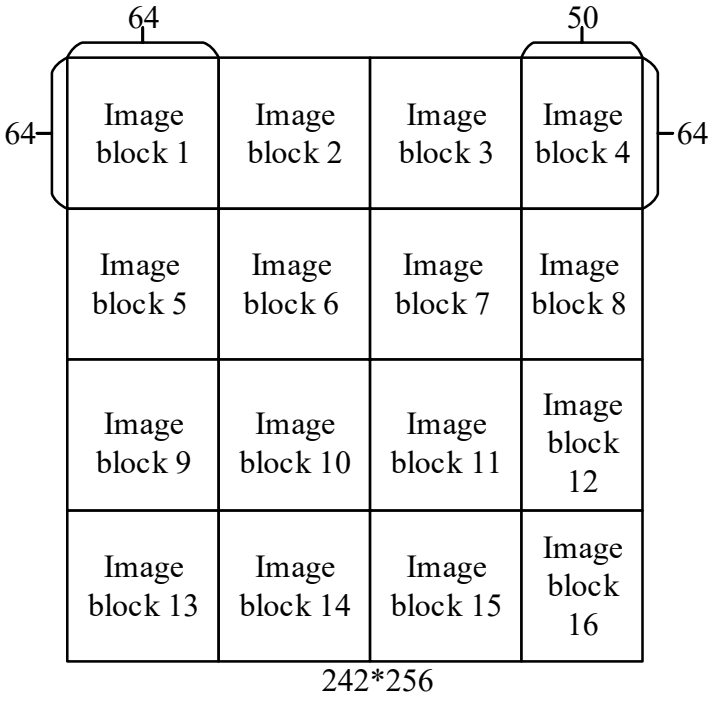

64
50
64
64
Image block 1
Image block 2
Image block 3
Image block 4
Image block 5
Image block 6
Image block 7
Image block 8
Image block 9
Image block 10
Image block 11
Image block 12
Image block 13
Image block 14
Image block 15
Image block 16
242*256

FIG. 5

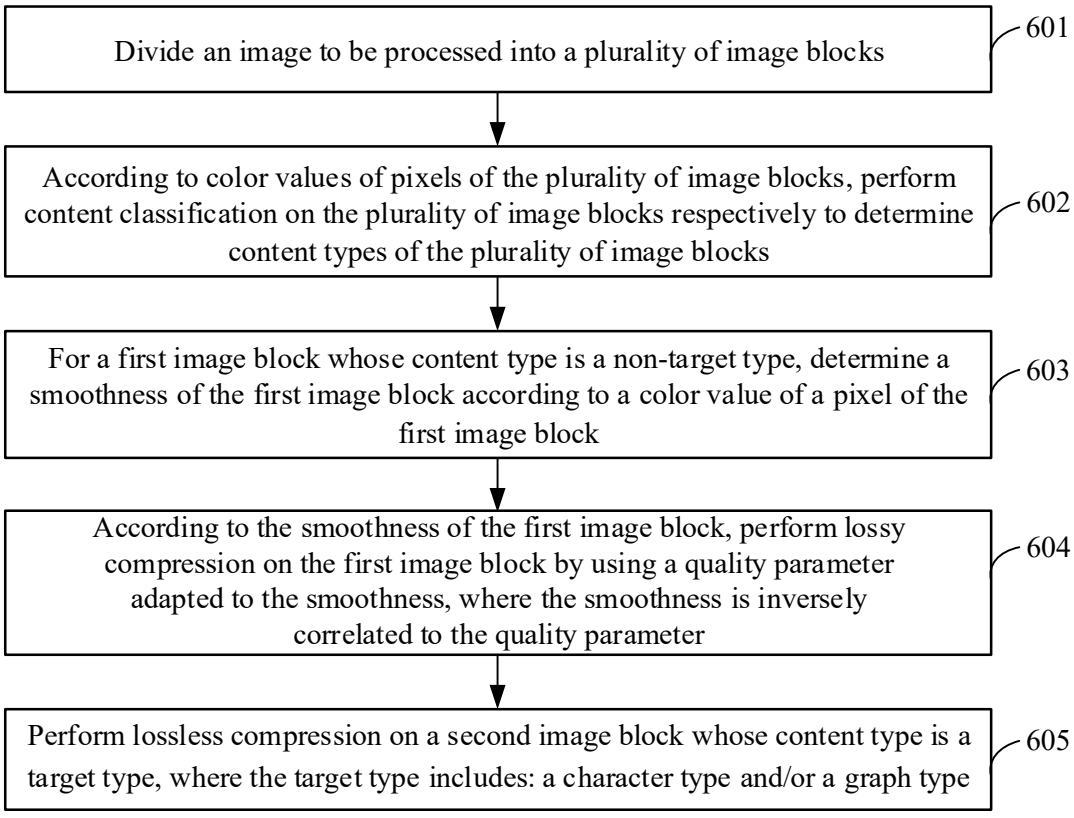

Divide an image to be processed into a plurality of image blocks
601
According to color values of pixels of the plurality of image blocks, perform content classification on the plurality of image blocks respectively to determine content types of the plurality of image blocks
602
For a first image block whose content type is a non-target type, determine a smoothness of the first image block according to a color value of a pixel of the first image block
603
According to the smoothness of the first image block, perform lossy compression on the first image block by using a quality parameter adapted to the smoothness, where the smoothness is inversely correlated to the quality parameter
604
Perform lossless compression on a second image block whose content type is a target type, where the target type includes: a character type and/or a graph type
605

FIG. 6

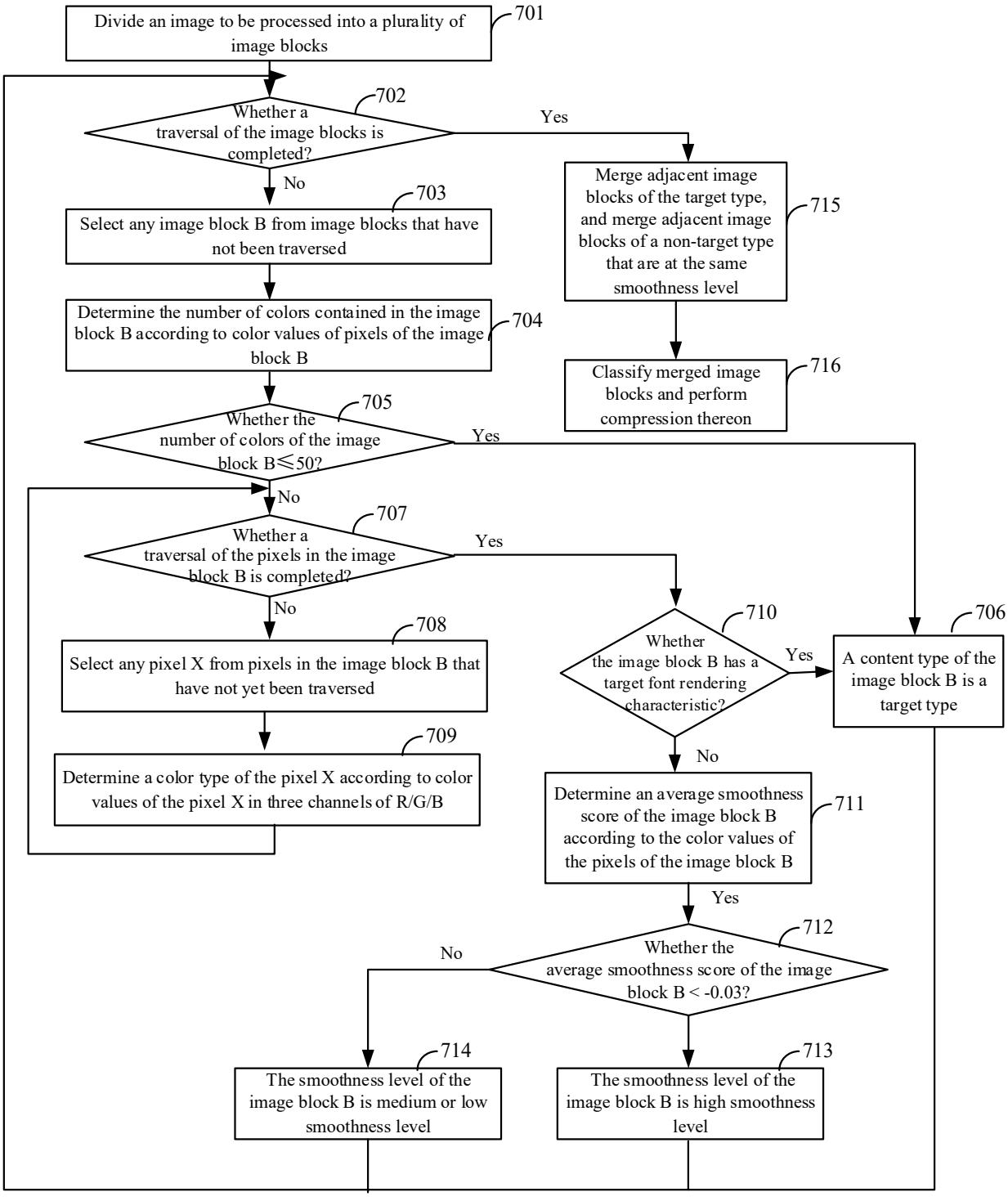

Divide an image to be processed into a plurality of image blocks
701
Whether a traversal of the image blocks is completed?
702
Yes
No
Merge adjacent image blocks of the target type, and merge adjacent image blocks of a non-target type that are at the same smoothness level
715
Classify merged image blocks and perform compression thereon
716
Select any image block B from image blocks that have not been traversed
703
Determine the number of colors contained in the image block B according to color values of pixels of the image block B
704
Whether the number of colors of the image block B≤50?
705
Yes
No
Whether a traversal of the pixels in the image block B is completed?
707
Yes
No
Select any pixel X from pixels in the image block B that have not yet been traversed
708
Determine a color type of the pixel X according to color values of the pixel X in three channels of R/G/B
709
Whether the image block B has a target font rendering characteristic?
710
Yes
A content type of the image block B is a target type
706
No
Determine an average smoothness score of the image block B according to the color values of the pixels of the image block B
711
Yes
Whether the average smoothness score of the image block B < -0.03?
712
No
The smoothness level of the image block B is medium or low smoothness level
714
The smoothness level of the image block B is high smoothness level
713

FIG. 7a

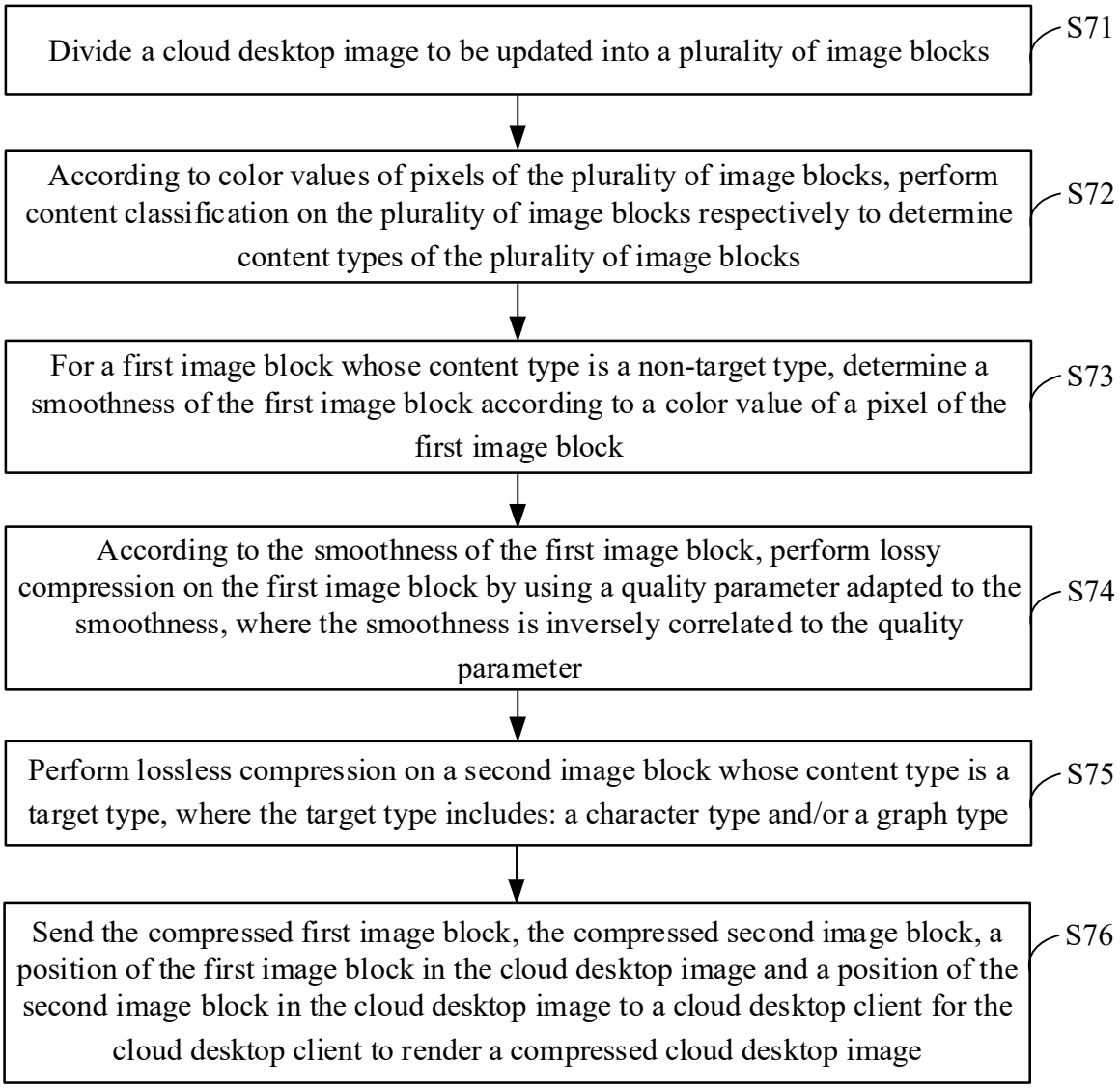

Divide a cloud desktop image to be updated into a plurality of image blocks
S71
According to color values of pixels of the plurality of image blocks, perform content classification on the plurality of image blocks respectively to determine content types of the plurality of image blocks
S72
For a first image block whose content type is a non-target type, determine a smoothness of the first image block according to a color value of a pixel of the first image block
S73
According to the smoothness of the first image block, perform lossy compression on the first image block by using a quality parameter adapted to the smoothness, where the smoothness is inversely correlated to the quality parameter
S74
Perform lossless compression on a second image block whose content type is a target type, where the target type includes: a character type and/or a graph type
S75
Send the compressed first image block, the compressed second image block, a position of the first image block in the cloud desktop image and a position of the second image block in the cloud desktop image to a cloud desktop client for the cloud desktop client to render a compressed cloud desktop image
S76

FIG. 7b

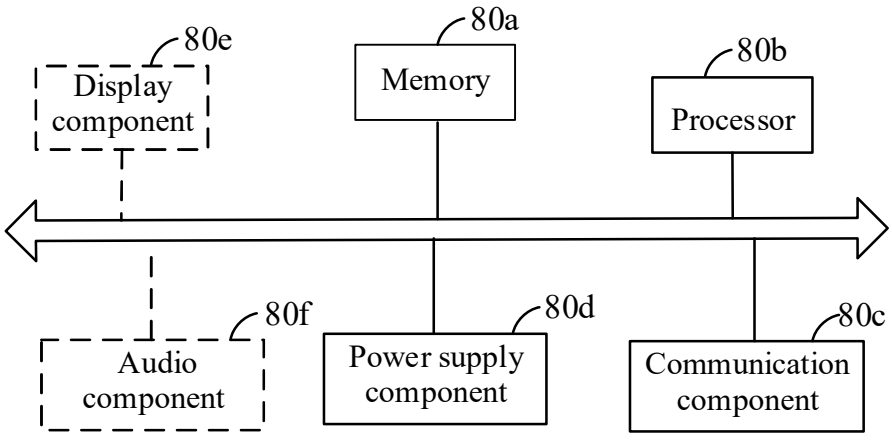

80e
Display component
80a
Memory
80b
Processor
80f
Audio component
80d
Power supply component
80c
Communication component

FIG. 8