Refactoring Blink Paint Code

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The aim of this project is to refactor Blink's paint code for easier understanding and subsequent reimplementation.

Blink paint code is spread among many classes and is very difficult to understand. For any given object, it's painting code may be split among many superclasses, with a different breakdown for different phases. Trying to modify this code, particularly for the purposes of caching painted content, is challenging under this environment. We will move the painting code to it's own directory and break all painting methods out of the RenderObject hierarchy.

Code Location and Naming Conventions

Option 1:

- Create Source/core/paint. Pull it out of rendering because it is a distinct phase.
- Create a painter class for each render tree class, e.g BlockPainter, ReplacedPainter, ImagePainter, etc
- Each painter class gets static methods that take a RenderObject of the appropriate type and the standard paint arguments (paintInfo and paintOffset) plus any method specific arguments. Do it this way because currently paint methods make very extensive use of RenderObject members. It might be sufficient to pass style in instead but that would increase the number of other parameters and generally confuse things (it would make it clearer as to what paint methods use what information).
- Modify each RenderObject derived class to invoke the painter methods. For all "top-level" methods for painting, create a static method in the matching painter class. At each call site, it will then be explicit as to which class is handling the painting of which on-screen effect.
- Painting related sub-methods move to be hidden inside the appropriate painter class.

Option 2:

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Break Different Paint Phases into Different Methods

We can take each paint method that currently handles multiple phases and break it into one method per phase, with appropriate helper methods. This sets us up for easier DisplayList caching because a single method will no longer have to manage multiple DisplayLists just for multiple passes (it may need to for correct child painting or the like).